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PAPERS PRESENTED TO CONGRESS

In this issue we publish below the papers presented to the 1945 Congress of the N.V.M.A. in the Grand Hall of the Royal Veterinary College, N.W.1, on Thursday, September 27th, 1945, those delivered the previous day having received publication in our issue of last week.

On this occasion the large assembly, which was under the chairmanship of the President, Professor Wm. C. Miller, heard with much appreciation contributions by Dr. J. Carmichael, formerly Senior Veterinary Research Officer, Uganda, and Capt. W. W. Henderson, until recently Director of Veterinary Services, Northern Nigeria, on, respectively, "Achievements of the Colonial Veterinary Service in East and West Africa During the War."

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The PRESIDENT: Ladies and Gentlemen: This morning, for the second of the professional meetings of the Congress, we are privileged to have with us Dr. Carmichael and Capt. Henderson, both of whom need no introduction. The subject, as you know, is the "Achievements of the Colonial Veterinary Service During the War," and as with the "Achievements of the Royal Army Veterinary Corps," we have the opportunity to tear away the veil of secrecy which has hidden the work carried out by the Colonial Veterinary Service during these last six years. I am sure that just as you all had a surprise at the magnitude of the advances made by the R.A.V.C., you will also have a surprise at the magnitude of the achievements of the Colonial Service during these past years.

You will not wish to delay longer, so may I formally introduce to you Dr. Carmichael, until recently the Director of Research in the Veterinary Department of Uganda, and Mr. Henderson, till lately the Director of Veterinary Services of Nigeria. You will appreciate that the titles being "East Africa" and "West Africa," it is difficult to compress into the confines of a morning's discussion, activities which have ranged over such huge territories, both in East Africa and in West Africa, so without more ado I will ask Dr. Carmichael to read his paper. (Applause.)

Dr. J. CARMICHAEL: Shortly after my return to this country the Chairman asked me to read a paper on the activities of the Colonial Service in East Africa during the War, and light-heartedly I accepted. Some time after that I reflected on what I had done and I came to the conclusion that this was not a light-hearted business at all and that I had taken on quite a lot, and in fact I realised how difficult it is in a short space of time to give you an account of the activities—I will not say achievements, but the activities of the Colonial Veterinary Service in East Africa during the past five and a half years.

Before I go on with the paper I would like to take this opportunity of acknowledging the honour that has been paid to the Colonial Service and to myself in asking me to read this paper. I think it is significant that two papers, occupying the whole of this morning's Congress, are devoted to the Colonial Service, and we appreciate very much the interest which the N.V.M.A. is now taking, and has taken for a good number of years, in the Colonial Service. I feel that we all ought to be Colonial-minded these days, and Empire-minded, and it is gratifying to see that our Association is not lagging behind in this respect. It is appalling to people who know the Empire how very little is known by the ordinary man in the street in Great Britain, although we have the greatest Empire that the world has ever seen. This interest on the part of the Association is very much appreciated, and perhaps I could say that I was responsible probably for some of the—what shall we call it?—primary stimuli many years ago when I was in London.

At the risk of being accused of giving a geography lesson I think that before we go on with the paper I must try to put over East Africa geographically and give you an idea of what the place is like, otherwise I do not think that the substance of the paper can possibly be appreciated. East Africa occupies a large lump of land bordering on the East Coast of Africa, astride the Equator. It consists of the three territories, Kenya, Uganda and Tanganyika and is bordered in the North by Abyssinia, once occupied by our late Italian friends, and in the South by more British territory in the form of Northern Rhodesia and Nyasaland, and to the West it is bordered by the Belgian Congo. Now this bit of country is pretty big, and I believe the modern way of putting over bigness is to try comparison with something nearer home. Well, East Africa is 15 times the size of Great Britain, and three and a half times the size of France. It has a cattle population of approximately 14 million, it has an equal number of sheep and goats, and as regards the Veterinary Service it works out at about one Veterinary Officer to four hundred thousand head of cattle. In England the ratio, I believe, is somewhere in the region of about one veterinary surgeon to about ten thousand head, so we have an area of land 15 times the size of Great Britain and we have got one Veterinary Officer to every four hundred thousand head of cattle, not counting sheep and goats and other oddments.

As I said, it is astride the Equator, and the climate varies directly with the altitude. At the coast one has a high tropical climate, with coconut palms, coral reefs and all the other romantic things that you get on the African coast, and if we follow the railway inland, westward, almost running along the Equator, it rises gradually and climbs up into the Kenya heights, to a height of approximately nine thousand feet. Now in this area, at an altitude of six to nine thousand feet, we have a temperate climate—a beautiful climate. The crisp early mornings have got to be experienced to be appreciated, and here in this area we have European agriculture going on very much the same as what goes on on the Sussex Downs or up in Yorkshire.

The altitude then drops gradually down to Lake Victoria, which is a pool of water about the size of Ireland and about four thousand feet above sea-level, and we cross this little pond and get into Uganda, on the other side of it, also at an altitude of about four thousand feet, rather tropical in many places and malarious in most.

So much for the country as a whole. It is by sea about ten thousand miles away from here, and I think you probably would be interested to get an idea of the general feeling during the War. Well, I think I am right in saying that the feeling generally as the War went on was one of isolation; it was bound to be isolation, and as I say, a very vast portion of East Africa is not a health resort and the health of the Services, of which the Veterinary Service, of course, is a part, did depreciate very much, and everyone was both mentally and physically tired and was ready for a change into more temperate climates.

At the risk of being rather egotistical on behalf of the Service, I might read a paragraph that Colonel Oliver Stanley wrote in last week's *Sunday Times*. One does not hear much of the Colonial Service, and it gives one a bit of a kick to think that there is somebody who knows that it exists, and Colonel Oliver Stanley, as you know, was the Secretary of State in the last Government, and he wrote a little appreciation. He said: "Nor should we fail to pay tribute to the men of the Colonial Service, deprived of the normal opportunities for leave—those periods which in a tropical climate are not so much recreational luxuries as physiological necessities—cut off in some cases for seven or eight years from their wives and families—increasingly short-handed as normal wastage created vacancies which there was no recruitment to fill, incessantly burdened with fresh activities, as war-time stringencies necessitated new and unfamiliar extensions of Government activity and Government control. Yet they carried on loyally, efficiently, uncomplainingly, though perhaps sometimes envying the lot of their more fortunate colleagues who had been allowed to join the Services. Without their devoted labours the structure of Colonial administration might have been irretrievably damaged and the war potential of the United Nations grievously impaired." That was from Colonel Oliver Stanley about the Colonial Service.

Now after these few introductory remarks I feel that I must get on with the paper, but I do want you to try and get an idea of the country that we are talking about. As I said, the achievements, if any, during the War I must leave for you to judge. I will merely give a very sketchy account of our activities; I will avoid, as much as I possibly can, statistics and masses of figures, which I do not think ever get across in a talk of this sort, and they can always be looked up in various Blue Books and other coloured books if one is interested.

Achievements of the Colonial Veterinary Services in East Africa During the War

JAS. CARMICHAEL, D.SC., M.R.C.V.S., DIP. BACT.
Formerly Senior Veterinary Research Officer, Uganda

I will attempt to give you an account of the activities of the Colonial Veterinary Service in East Africa during the war, but I must leave you to judge the achievements if any. I was not responsible for the title of this paper.

You will remember that the Italians occupied Abyssinia and Italian Somaliland on our Northern borders and for some reason best known to themselves they did not walk or ride into Kenya and Uganda nor did they drop any bombs on our ports or railways or towns. Various reasons and rumours have been produced to account for this non-aggressive attitude but it does not concern us at the moment and no doubt we will learn the true story in the course of time. The East African Command Headquarters were situated at Nairobi and the influx of many thousands of European troops and the recruitment of many more Africans into the Services strained the local food supplies considerably. Later on this shortage was further aggravated by the arrival of many thousands of Italian prisoners of war and internees and some 20,000 Polish refugees. When things were going badly in the Far East the fleet were based on Mombasa and ships had to be re-victualled largely from local resources. You will appreciate that the Veterinary Services were intimately concerned with these problems not only as regards the immediate supply of meat, milk, butter and other animal products, such as hides, but here was an acid test of the results of our long-term policy of disease control and animal husbandry which had continued, not without criticism, for many years prior to the war.

I have outlined the objects of supply which immediately concerned the Veterinary Service during the war in East Africa; now I will endeavour to relate to you the background which made the supply of these essential items possible and the supply organisation in so far as we were concerned.

Further, I will also mention other activities entirely outside the professional sphere which veterinary officers were called upon to perform as part of the war effort and which may prove of general interest.

The Veterinary Service was of course only a part of the general machinery which aimed at making East Africa self-supporting and also turning it into a supply base so as to save valuable shipping space from Great Britain and other countries overseas.

A certain number of veterinary officers were allowed to join the armed forces in their professional capacity as veterinary surgeons and one of these—Lionel Lester, M.R.C.V.S.—lost his life in Abyssinia whilst serving with the R.A.V.C. Others joined combat units, but the majority were ordered to remain in their civilian posts and carry out their ordinary duties as veterinary officers. In addition, however, many of these were gazetted as administrative or political officers ancillary to their veterinary duties so as to relieve the general shortage of man-power which existed in all the East African territories.

Disease Control

The efforts during the years preceding the war in controlling the major epizootic diseases were rewarded and paid substantial dividends to the state in so far that ample supplies of cattle were available and whilst shortages did occur the supplies never failed. The control of disease assumed very great importance not only to preserve the existing stock but in order to keep open the various trade routes which were essential for the supply of cattle for military needs.

In 1940 rinderpest spread south of the Central Railway in Tanganyika and threatened Northern Rhodesia and the countries south in the Union of South Africa. A grave situation developed and it was only by the closest co-operation of the East African Governments and Union of South Africa that the danger was overcome by the wholesale inoculation of some four million head of cattle by a team of workers from South Africa, Rhodesia, Tanganyika and Kenya. The vast majority of the cattle in an area of some hundreds of square miles were immunised by the attenuated goat virus method. This method, which was originally developed in India, consists of the injection of rinderpest virus in the form of a suspension of spleen pulp which has become attenuated for cattle by passage through goats. The spleen pulp is desiccated and is issued in ampoules each containing enough for 200 injections. The ease of transport of this prophylactic was a great boon and it could easily be carried by air over vast distances. The attenuated goat virus was supplied by the Veterinary Research Laboratory at Kabete in Kenya at a very cheap rate. This rinderpest campaign in the wilds of Southern Tanganyika was an arduous task. During the rains movement other than on foot was almost impossible and the sickness rate was high and the whole team are to be congratulated on a fine job of work. It will be realised that considerable anxiety prevailed in South Africa as rinderpest had not occurred in the Union since the devastating epizootic at the beginning of the century, and there is no doubt that the campaign of immunisation, to which I have already referred, not only prevented the southward spread of the disease but enabled Tanganyika to provide some thousands of head of cattle for military needs later in the war. Other rinderpest epizootics in various degrees of severity occurred during these years in all the East African territories, and were dealt with by the veterinary staffs concerned and in no case was the supply of cattle held up for any considerable time.

Rinderpest was probably the most important disease to control but pleuro-pneumonia was a constant menace and large numbers of vaccinations with an attenuated culture vaccine prepared at the Kabete Laboratory were carried out.

Trypanosomiasis.—Trypanosomiasis, whilst not a spectacular killing disease like rinderpest, is responsible for colossal losses throughout tropical Africa and the wasting and loss of condition in cattle affected with the disease is of great importance when meat is a primary object. Research into the chemotherapy of trypanosome infections, which will be referred to later, was pressed forward and all steps were taken to reduce the losses.

In many cases it was necessary for cattle to trek through tsetse fly belts on their journey to a military depot or a distributing centre. This raised many important problems in prophylaxis and treatment of the inevitable trypanosomiasis in order to prevent losses either by death or in meat due to the emaciating effects of the disease. Losses of course did occur, but owing to the application of modern veterinary knowledge these were kept to a minimum.

During 1942-1943 there was an amazing spread of tsetse fly infestation throughout East Africa. Fly appeared in areas hitherto completely free, and in some areas the cattle population was wiped out and the country rendered unfit for stock. A satisfactory explanation for this extension of tsetse fly has not been given but there appears to be some relation to abnormally wet seasons and an increase in the bush density which renders it suitable for tsetse habitation. Various steps were taken to prevent and neutralise this spread and in some areas of Kenya Italian prisoners were used to clear large selected areas of bush, thus producing barrier clearings which prevented further spread of the fly which is of course dependent on adequate bush cover for its survival. Research into treatment continued, and in 1943 a tsetse conference representing the whole of East Africa was convened with a view to co-ordinating and stimulating research into this menace which was threatening to destroy both man and beast from trypanosomiasis and rendering large tracts of fertile country useless. It is not an exaggeration to say that the tsetse problem is one of the major factors, if not the major factor, which is holding up development in equatorial Africa and the veterinary profession is very intimately concerned with all its aspects and in the steps necessary for its solution.

Tick-Borne Diseases.—East Coast fever, redwater, anaplasmosis and other tick-borne diseases are a constant menace in East Africa and gravely complicate the successful operation of the stock routes initiated to provide the thousands of cattle required to feed the Army and the civilian population.

East Coast fever is a very fatal disease and rapidly wipes out cattle from areas where the disease is not enzootic. In enzootic areas a natural and permanent immunity is acquired during calfhood but in clean areas the stock is highly susceptible and during a trek of several hundred miles through infected areas these cattle die by the thousands. There is no known prophylactic or treatment for East Coast fever and the only method of control is to destroy the ticks by dipping. As will be pointed out later, dips had to be constructed on some of these stock routes; otherwise the animals succumbed before they reached their destination.

Bacterial Diseases.—The usual bacterial diseases such as anthrax, blackwater, haemorrhagic septicaemia, tuberculosis, etc., remained with us and were dealt with in the usual way, but they did not complicate the supply problem to any appreciable extent, as far as I know.

The Livestock Control

Even in Africa this appellation, which we know so well, became a household term and not exactly one of endearment. The livestock control was not so much concerned with providing 1s. 2d. worth of meat per person per week as organising the supply of cattle for the civil and military population.

This organisation was entirely in the hands of the veterinary departments and the Director of Veterinary Services in each country was gazetted as livestock controller.

The arrangements varied slightly in each territory and as far as

civilian needs were concerned there was as little interference with private trade as was possible.

The centres as far as military requirements were concerned were in Kenya and cattle were collected and transported to Kenya mainly on the hoof from both Uganda and Tanganyika.

In Uganda the District Veterinary Officers, in conjunction with the Native Administration, arranged sales in specified areas of their districts and on the appointed day the owners arrived with the cattle they wished to dispose of. These consisted usually of only one animal per owner, but sometimes several were brought by one man and were more often than not tied by the hind leg with a piece of rope on which the owner carried out a struggle rather like a tug-of-war with a man at one end and a bullock at the other! Five or six hundred head of cattle were brought in and the scene was one of shouting natives and bellowing cattle somewhat trying to the nerves! The veterinary officer, accompanied by an African clerk and a few assistants, went round the stock and after the usual bargaining bought each individual animal. Payment was in East African shillings and several hundred pounds had to be carried about in bags of 1,000 shillings each and as much as £500 or more would be paid out in shillings in one day's buying, by the end of which, after the usual rigmarole of checking and filling in forms and vouchers, the veterinary officer had had enough for the day!

Arrangements were then made for the cattle to trek off on their particular route on which transit camps were built about every 15 to 20 miles. The siting of these camps was important as adequate grazing and water supplies had to be available and arrangements made for the feeding and housing of the herdsmen in charge of the animals.

It should be added that considerable propaganda was necessary before the African was persuaded to part with any cattle at all and it speaks highly of his loyalty that so many cattle were made available to meet military requirements and feed labour in essential industries like sisal estates. This is the more so when one knows how reluctant the African is to sell anything in the way of stock. It corresponds almost to living on capital as far as he is concerned, a procedure which is naturally viewed with some suspicion even by a primitive African. In Kenya, the livestock control had their own buyers and were directed to suitable areas by the Veterinary Department. Drought conditions and tsetse belts complicated very considerably the movement of much of this stock, which consisted mainly of cattle and camels from the northern arid parts of the colony to the commercial centres.

From Tanganyika the cattle had the longest trek and special water supplies had to be found and the animals so routed that water was available for them during their long journey.

Apart from the inevitable loss in condition associated with long treks, trypanosomiasis and East Coast fever took their toll and it was found to be necessary to install dips at certain of the transit camps *en route*. A cattle dip holds approximately 4,000 gallons of arsenical solution and is about eight feet deep and of course must be impervious. It can be imagined that the construction of dips "out in the blue" was not an easy undertaking. All material such as cement, tools, etc., had to be transported perhaps hundreds of miles and the dip had to be so sited that a constant supply of water was available and the cattle were cleared of ticks at the appropriate times. At the Kenya end of these stock routes Messrs. Liebigs' factory turned the cattle into bully beef for the troops. This factory had had a chequered career and was constructed before the war but had to close down owing to lack of cattle at economic prices. It, however, was taken over by the military and proved of considerable value during the war years, as you may well imagine.

Feeding-Stuffs—Dairy Produce and Hides

The highlands of Kenya are populated by European farmers who have been responsible for the production of much grain such as wheat, oats and barley and dairy produce. The sale of butter fat is one of the principal sources of income, and milk recording and improvement in the herds generally is on the increase. Here European stock does very well and high quality herds of Friesians, Shorthorns, Jerseys, Ayrshires and other British breeds are kept. Supplementary feeding-stuffs are more and more commonly used and the local oil seeds such as cotton, groundnut, sesame and linseed and even coconut were made use of to an ever-increasing extent. Mills were erected to crush the seeds and the resultant cakes were available for cattle feed. Bodies similar in many ways to the War Agricultural Committees in this country functioned in every district and were responsible for much improvement, and co-ordination of supplies.

In the native areas in all the East African colonies the production of ghee or clarified butter was stepped up in order to meet the demands of the large Indian population and to replace much of the article which was imported from India before the war. Field dairies were increased and much propaganda was used to persuade the African to bring in his milk to be separated. The cream was then churned and the butter heated and put into four-gallon drums which were sealed and made ready for transportation. It will be appreciated that the numerous races in East Africa complicated the supply problem, for the diets were not the same and not only was the European to be catered for but many thousands of Indians, Arabs and Somalis as well as the millions of local Africans of various tribes. As in this country the urban populations proved the most difficult to provide for, and control the supply of food; in the country districts the position was much easier. Fresh milk supplies were also organised by the Veterinary Departments for hospitals and refugee camps in various parts of the country.

East African hides, used mainly for uppers, became a first priority product and propaganda for improved methods of preparing hides was intensified. The marketing of raw hides was reorganised and new legislation dealing with grading, sorting, marketing and prices was introduced with a view to making the trade more efficient and to increase the supply of first-class products, and without going into detailed figures I think I am safe in saying that this object was achieved.

Research

With the reduction of staffs and other difficulties research activities were severely restricted and work was mainly concentrated on the production of prophylactics such as attenuated goat virus, of which several million doses must have been produced at Kabete, various sera, vaccines, etc.

The Research Laboratories in Kenya, Uganda and Tanganyika all carried on, and interesting and valuable information on animal husbandry problems was obtained. At Mpapwa interesting experiments were conducted on grazing problems and erosion and one result which comes to my mind was that that much maligned animal the goat was found to be much less of an erosion producer than cattle. This is natural when one remembers that the goat is a browser whereas heavy concentrations of cattle over-graze the herbage and reduce grass cover to a danger level when erosion commences. Nevertheless, the goat, which is ubiquitous in East Africa and never seems to suffer from disease to any extent, is always labelled public enemy No. 1.

Chemotherapeutic research was carried out in all three territories and new drugs of the aromatic diamidine series and the phenanthridinium compounds were investigated with special reference to Trypanosome and Babesia infections.

As a result we have phenamidine, a useful specific against Babesia, and it seems as if phenanthridinium is a great step forward in the control of *T. congolense* infection.

It is impossible in a talk of this description to go into details of research achievements during the war years in East Africa but before closing I should mention that co-operation and co-ordination in research in the East African territories was assured by regular meetings of the East African Veterinary Research Committee under the auspices of the Governors' Conference. This committee, the personnel of which consisted of the administrative and research heads of the three territories, pioneered the way for similar committees in medicine and agriculture and proved a great stimulation to research in these war years. Plans for a centralised Research Institute for the whole of East Africa are well advanced.

War Work Other Than Professional

As has been mentioned, a considerable number of veterinary officers joined the armed forces and rendered valuable service in both combatant and non-combatant units in East Africa and elsewhere.

Of those who remained in a civilian capacity most were members of the local defence force which corresponded with the Home Guard in this country. Others did a variety of jobs not in any way connected with their professional duties. A veterinary research officer in Uganda took charge of a large Polish refugee settlement and has only recently returned to the laboratory. The D.V.S. in Uganda actually organised the reception of some thousands of Polish refugees from Persia. This entailed the siting of the camps, arrangements for buildings, engagement of staff, ordering of supplies, etc. Another member of the veterinary staff became commandant of a large and very varied internment camp at Entebbe. In this camp were about 1,000 Italians plus some hundreds of other nationalities representing most countries in Europe. This involved many dealings with security services, International Red Cross, Protecting Powers, etc.; meanwhile the laboratory was also carried on and the Veterinary School maintained. Other members of the Veterinary Departments served on endless committees such as those dealing with defence, man-power supply, etc., whilst many District Veterinary Officers, as I have already mentioned, performed the duties of Assistant District Commissioners as well as their own work.

I feel that the countries concerned and the Colonial Service and the Empire benefited from these miscellaneous efforts on the part of the veterinary profession. To me it served to bring home the fact that a professional or scientific education is an excellent background for an administrative career and I think in future that the service should make a much wider use of this fact and that the higher administrative posts in the service should be thrown open to the scientific and professional departments. After all, the wider the net is cast the more chance there is of obtaining personnel of the best quality. I hope this very sketchy survey of the work of the Veterinary Service in East Africa has proved interesting—it is at any rate a change of diet for you. I am afraid the Colonial Veterinary Service has many problems ahead of it, not the least being one of man-power; this can only be solved by making the Veterinary Service attractive to the right type of man.

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A Few Figures of Interest

During 1943 and 1944 Tanganyika alone sent 158,000 head of cattle, valued at over £312,000, to Liebig's factory in Kenya.

Ghee or clarified butter production in Tanganyika rose from 1,639 cwt., valued at £6,971, in 1939 to 6,183 cwt., valued at £38,995, in 1944.

In 1942 the value of hides and skins exported from East Africa totalled well over half a million pounds sterling.

In Uganda the internal cattle trade in 1943 was estimated to be worth over £1,000,000.

Kenya produced in 1942: 4,417,372 lb. butter, 330,000 lb. cheese, 1,651,369 lb. bacon and ham; and she exported in the following year butter to the value of £18,450 and bacon and ham to the value of £9,758.

Liebig's factory produced the following animal products in 1943:—

Corned beef	101,599 cases
M. and V. rations	24,939 „
Beef extracts	173,395 lb.
Beef powder	437,381 „
Edible fat	133,998 „
Glue	61,874 „
Bone Meal	1,591,075 „
Tallow	127,486 „
Blood Meal	150.864 „
Horn and Hoofmeal	63,616 „
Meal meal	1,053.864 „
Hides	760,397 „

I have to thank Mr. H. J. Lowe, C.B.E., M.R.C.V.S., Director of Veterinary Services, Tanganyika, for much information about the war effort in his territory. Other information was obtained from the annual reports of the East African Veterinary Departments.

N.B.—The above figures were mentioned among others during the address.

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The President: All I would say just now is "Thank you, Dr. Carmichael," and call upon Capt. Henderson to read his paper.

Achievements of the Colonial Veterinary Services in West Africa During the War

W. W. HENDERSON, C.B.E., M.R.C.V.S., D.V.S.M.
Director of Veterinary Services, N. Nigeria

I much appreciate the kindness of your President in inviting me to give you some account of the war-time activities of your colleagues in West Africa, and I feel sure they will find encouragement in this evidence of your interest in their life and work. For my own part I am particularly glad of this opportunity to tell you something of our recent achievements in West Africa, more particularly Nigeria, since I feel that the great advance made by our profession during the past 30 years or so is by no means fully understood in administrative quarters, nor do our professional status and high standard of training always receive proper recognition even in the Colonial Office itself. What I mean is this:—

In certain colonies to-day the independent status of the Veterinary Department is threatened by a tendency to regard it, if not as a part of, then at least as a kind of handmaiden to, the Agricultural Department. To my mind, however, there can be no question that not only disease control, but all aspects of livestock development and improvement (such as breeding, nutrition and animal management, for instance), should be the responsibility of the veterinary rather than of the agricultural authorities. It is to be hoped that the success of its many varied activities during the past few years will establish the true worth of the Colonial Veterinary Service, whether in the familiar fields of normal veterinary work or in the unaccustomed ventures instanced by war-time needs.

Our activities during the war period fall roughly under three main heads: Disease Control, Veterinary Education and Animal Products, and I propose first to tell you something about the work of Disease Control.

Disease Control

Pre-war estimates show that some 500,000 to 600,000 cattle were slaughtered annually in Nigeria, of which about 120,000 came overland from neighbouring French territory. War-time demands sharply increased the drain on Nigeria's meat supplies and her difficulties were still further augmented in the early stages of the war when the Vichy authorities placed a ban on the export of livestock from these territories overland to British West African Dependencies. At the same time a slackening in the normal disease control measures on the other side of the international boundary offered a new menace to the health of the Nigerian herds, upon which the civil and military populations of the country were in war-time wholly dependent for their supplies of meat and dairy products. It was therefore imperative that wholesale preventive measures should be pushed forward with all possible speed in order to safeguard our local cattle against outbreaks of rinderpest and kindred diseases. In Nigeria, as in other West Coast territories, prevention rather than cure is the only practicable means of dealing with the more serious cattle diseases, and with rinderpest in particular. With their large herds and flocks constantly on the move in search of seasonal grazing, their vast spaces and their comparative lack of communications and transport facilities, the West African Colonies present especial difficulties in the matter of disease control. News travels too slowly for control measures to be of much effect in outbreaks of disease, and even if individual outbreaks were promptly reported, any efforts to control them would be defeated by the invariable tendency of the nomadic African pastoralists to flee from the vicinity in which an outbreak occurs, often carrying infection to fresh foci in their new homes. The remedy therefore lies rather in the prophylactic vaccination of healthy cattle on a scale large enough to maintain an adequate buffer of immune cattle against the spread of rinderpest and other serious epizootics, thus eventually eradicating such diseases from the country.

This policy had been in active operation in Nigeria for nearly 20 years before the war and only required expansion and intensification on the widest possible scale in order to ward off the additional threats to the health of our herds introduced by war-time conditions. It will give you some idea of the scale on which this policy was carried out when I tell you that during 1943 alone, vaccinations against rinderpest, blackquarter, anthrax, contagious pleuro-pneumonia and haemorrhagic septicaemia amounted to more than 2,000,000: of this number between 500,000 and 600,000 were given for rinderpest alone. During the same period some 23,000 cattle received curative treatment for trypanosomiasis, against which no reliable method of immunisation has yet been evolved; treatment in the majority of cases consisted of a course of intravenous injections of a solution of antimony tartrate. The curative treatment of helminthiasis, which was given to over 59,000 calves, sheep and goats, saved many animals and was also found to increase their growth rate. I should perhaps mention that in Nigeria all vaccinations and treatment are free of charge—a fact which is, I believe, largely responsible for the successful results of our policy of disease control. I shall have more to say on this subject later on.

Laboratory Service

No account of our disease control activities would be complete without some reference to the work done by our laboratory service. All the biological products used in the field were made at the departmental laboratory at Vom and during the war years the veterinary pathologist and his staff were often hard put to it to maintain supplies in the large quantities required. Apart from meeting our own heavy demands the laboratory also provided large quantities of contagious bovine pleuro-pneumonia and blackquarter vaccines to combat serious outbreaks of these diseases in French Equatorial Africa.

Research

Along with the manufacture of biological products the laboratory staff were also engaged upon research into the use of attenuated rinderpest virus as a vaccine under Nigerian conditions. Although much valuable work had been done on the subject in India and Kenya, our own earlier experiments showed that the generation of attenuated virus which was yielding completely satisfactory results in Kenya was still too virulent for use in Nigerian cattle. Our field trials at first proved it advisable to give a small dose of hyperimmune serum simultaneously with the virus in order to overcome this higher susceptibility of our local cattle. By continued passage through goats the virus was further attenuated until it was at length found possible to dispense with the use of

serum altogether and to give the virus alone. This was a tremendous step forward, particularly as serum production was a most costly and cumbrous business. Our first pathologist in Nigeria, Professor Kearney, who was responsible for the whole laboratory organisation of serum production, would find Vom changed indeed, were he to visit it to-day; for all the stir and bustle and noise of the struggling cattle and their African attendants which went to the making of serum has now been replaced by an awesome silence. The change of course is more than superficial, going to the very roots of rinderpest immunisation procedure, with an incalculable saving in time, money and labour, since the old sero-virus simultaneous method in use throughout Nigeria and other West Coast colonies has, as far as Nigeria is concerned, now given way to a single injection of attenuated virus administered either in the form of fresh goat blood or of desiccated spleen tissue. Nor is this the whole story: for whereas the former method made it necessary to collect the cattle at fixed camps for inoculation and subsequently to segregate them for a four weeks' quarantine period, the non-infectious nature of the reaction set up by the new type of virus dispenses with the quarantine restrictions and makes it possible to establish inoculation centres anywhere. This naturally increases its popularity among the nomadic cattle owners who found the quarantine restrictions irksome and were sometimes reluctant to bring their cattle for immunisation treatment under the old system. The present greatly simplified method came at a time when, as I have already said, it was more than ever necessary to immunise the greatest possible number of cattle in order to reduce the risk of any widespread decimation of our herds. Actually the work is so much simplified, especially when desiccated spleen tissue is used, that it can be entrusted to any trained and reliable African assistant, requiring only occasional supervision on the part of European officers. Indeed, the procedure has been so enormously simplified and the cost so much reduced that all that is now necessary in order to bring rinderpest completely under control and finally to eliminate it from the whole of Africa is a sufficient number of European officers and trained African assistants for every country in which the disease exists, so that the campaign may be co-ordinated and directed on an international basis and pursued simultaneously in all affected areas.

What a future lies ahead for an African livestock industry no longer menaced by the dread scourge of rinderpest! Once the African cattle owner has learnt to value quality rather than quantity in his livestock, as he will when he finds his herds no longer decimated by disease, the stage will at last be set for stock improvement schemes designed to increase the economic productivity of the herds.

I have given you an account of our experiences in Nigeria with rinderpest goat virus as an immunising agent but the same happy results have not been obtained in the Gold Coast where, according to a recent private communication from Captain Stewart, Director of Veterinary Services, goat virus by itself has been found in that colony to be too severe for the dwarf humpless cattle, the so-called West African Shorthorn, which are notorious for their high susceptibility to rinderpest. It has also been found that when an accompanying dose of 50 c.c. of anti-rinderpest serum is given, only a proportion of the cattle react and that the others are still susceptible. Captain Stewart continues to use his old method of immunisation with excellent results. This consists of an injection of formalised spleen vaccine some seven to 14 days before a simultaneous injection of bovine virus and serum in fairly large doses. It is evident that further attenuation of the virus is necessary before it can be used with safety in the immunisation of these highly susceptible cattle. These humpless cattle are usually carriers of chronic trypanosomiasis and it is to this fact as much as to any breed peculiarity that this high susceptibility is due.

The work of rinderpest eradication must meanwhile be given No. 1 priority, and when this great task is finally accomplished I hope that the name of Dr. Edwards will be honoured as it deserves for the invaluable contribution he has made towards this end. It was he who, in the course of his research work in India, first discovered the means of taming and modifying rinderpest virus by repeated passage through goats—a discovery perhaps of greater economic benefit to the livestock industry than any other on record, though the outstanding value of Dr. Edwards' contribution to veterinary science has, to my mind, been insufficiently recognised. The investigations of Dr. Daubney and his research workers in Kenya have also done much to bring the new method of immunisation to its present high degree of efficiency. It was from Kenya that our own pathologist, Mr. Mettam, obtained the strain of virus which made his investigations possible and to all of these our thanks are also due.

If I had time I should have liked to tell you in greater detail of the work of disease control and research carried out in Nigeria under the stress and strain of war-time conditions, when shortage of staff made it difficult enough to maintain our activities even at pre-war level, let alone at the heightened pressure necessitated by war-time demands. But I must pass on now to the subject of Veterinary Education.

Veterinary Education

The construction, equipping and staffing of a Veterinary School in Nigeria takes an important place among our other war-time undertakings. Conditions in the West African colonies make it economically impossible to handle the large and complex disease control organisation required with European staff alone. In dealing with large herds of native owned cattle, scattered over huge stretches of country and constantly on the move, the pressing problem of provision of staff on the scale required can only be solved by training large numbers of reliable African assistants to take on many of the responsibilities hitherto entrusted only to Europeans. These assistants are needed not only to undertake the actual manual labour of prophylactic vaccination, but also to conduct initial investigations into all the principal disease conditions met with in British West Africa. The fact that both the Secretary of State for the Colonies and the Government of Nigeria approved the establishment of a Veterinary School at a time when conditions were the reverse of favourable is at once a high tribute to the past work of the Veterinary Department and an indication of the importance now attached by Government to the provision of an efficient and numerically adequate Veterinary Service.

At the recently opened Vom Veterinary School, Africans are now able to undergo training either as assistant veterinary officers or as veterinary assistants. The period of training in the former case extends over five and a half years and is preceded by an 18 months' science course at the Higher College, whereas the veterinary assistants undergo a three-year course at the Veterinary School only. The curriculum for assistant veterinary officers corresponds closely to that for the M.R.C.V.S. diploma except that more emphasis is laid on local diseases. It is hoped that graduates from this school will be able to relieve European officers of much of their present duties, thus leaving the latter free to concentrate upon work of an administrative and investigatory rather than of a field executive nature.

I do not however wish to convey the impression that the European veterinary officer will before long fade out of the picture altogether, for the reverse is actually the case. Indeed, more, and not fewer, Europeans will be required in the West African colonies for many years to come. The point is that they will in future be spared monotonous routine work and so be able to turn their scientific knowledge to more profitable account. A very high standard of training will in fact be necessary in future candidates for the Colonial Veterinary Service if they are to supervise and direct the work of African assistants and to give sound advice to native stock owners on matters such as breeding, feeding, animal management and the utilisation of the economic resources of the herds and flocks.

Animal Products

I come now to a description of our war-time efforts in connection with the utilisation of animal products and the production of foodstuffs. It is surprising—I might even say a disturbing fact—that whereas for many years past the patient and unobtrusive work of disease control has gone unsung, such recognition as has come the way of the Department has been mainly in connection with a series of new ventures in food production and with the preparation of hides and skins by improved methods in response to the increased demands of war. That is to say, it was not until the results of our earlier labours could be translated into terms of products of animal origin—and of food products in particular—that the Government and the public alike, and indeed the African pastoralist himself, began to recognise the economic value of the flocks and herds of the country. The new industries established and conducted by the Veterinary Department included the production of milk, butter, cheese, clarified butter fat, pork, bacon and beef, demonstrating possibly by way of the stomach what the mind had failed to grasp. Thus the value of disease control in building up bigger and better herds and flocks began to be more generally recognised and the usefulness of an adequate and fully equipped Veterinary Service admitted into the scheme of things.

In pre-war days Government had looked upon the local herds merely as a source of revenue derived from an annual tax of 2s. per head of cattle; and so long as Nigeria was able to import all the butter, cheese, cooking fats, pork and bacon she required internal sources of supply remained virtually untapped. By cutting off her supplies from overseas, however, the outbreak of war created the very opportunity needed to demonstrate the potential contribution to be made by our livestock industry to the social and economic prosperity of the country.

Fresh Milk.—Some time before the war the Veterinary Department had experimented with the consignment of pasteurised fresh

milk to Lagos, a distance of over 700 miles, in insulated boxes especially constructed for the purpose; the scheme had to be abandoned, however, on account of the heavy rail charges, which placed the price of the milk beyond the means of the general public. A scheme was also proposed for the establishment of a dairy in Lagos, to be stocked with imported cows of a good milking breed, but the Government was unwilling to bear the initial outlay and so this scheme too was dropped. It required a world war to bring home to the authorities the value of a local dairy industry and even so the dairy in Lagos now run by the Agricultural Department was originally established in the early years of the war by private enterprise. The war-time efforts of the Veterinary Department in this connection were limited to developing the dairy resources of its own herds, whose milk was sold to nearby military cantonments and private communities.

Fresh Butter.—The establishment and maintenance of an industry in fresh butter was, I think, our greatest contribution to war-time food production. Staff had to be trained, buildings erected and equipment somehow acquired—much of the latter being improvised locally owing to the delay in obtaining supplies from overseas. But from the necessarily modest beginnings in the early stages of the war, butter production rose steadily to the figure of 325,000 lb. a year. The industry was centred mainly on the plateau, where large numbers of cattle remain to graze all the year round. The whole of this area was covered with a network of buying units to which the native women brought the fresh milk of nearby herds each morning for sale. After passing the milk through separators on the spot the cream was taken to the central butter factory situated at the Vom Veterinary stock farm where it was pasteurised and made into butter. A second dairy unit was established in Kano and operated in conjunction with the Agricultural Department and the output from this unit brought the total production to 400,000 lb. a year.

This local butter industry was able to meet the needs of the civil and military populations of war-time Nigeria thus cutting out the drain on home supplies and at the same time saving shipping space—both vital considerations in the existing circumstances; but it has had other and more far-reaching effects of lasting benefit to the country. For now that the native cattle owner has at last found a good cash market for his surplus milk there is already growing evidence of his readiness to adopt improved methods of breeding, feeding and management, with the aim of increasing the productivity of his herds.

Cheese.—Such large quantities of milk soon became available that we found ourselves with a surplus, particularly in outlying districts, which the butter industry was unable to absorb. So we began to experiment with cheese production, in response to an ever-growing demand. The success of our initial experiments at Vom indicated that cheese production on a large scale was not only possible but promised to become a sound business proposition. A central factory was consequently built in a hitherto unexploited cattle grazing area, with branch factories so situated as to tap areas further afield. As in the case of the butter industry, much of the equipment required for cheese production had to be made locally in the first instance while we awaited deliveries from overseas; but in spite of these and other difficulties production before long reached a figure of roughly 100,000 lb. a year. Output for 1945 is reasonably anticipated to be in the region of 150,000 lb. with the possibility of a further increase if necessary in future years. The rich milk of the Nigerian cattle makes a highly nutritious and palatable cheese and the climate of the area in which the industry is centred is sufficiently cool to allow of storage during the maturing process. Under European tuition African assistants quickly learn to become expert cheese-makers and, with the exception of one European stockman, who spends a part of his time in the factory, the whole industry is now being operated by Africans.

As in the case of butter, the cheese-making industry benefits consumer and cattle owner alike. The price of 4d. a gallon received by the latter for his milk may not seem much to some of us; but to the African pastoralists, whose only previous market was to be found in a small local demand for native-made butter at 2½d. a pound, these new industries represent a source of untold wealth

Clarified Butter Fat.—The manufacture of clarified butter fat had been started by the Veterinary Department some years before the war but when our imports of cooking fats were cut soon after the outbreak of war we set about improving the original process and expanding output. The use of native butter in its manufacture was abandoned and the clarified butter fat was made instead from fresh cream by the direct method, on the lines adopted in Tanganyika, Kenya and the Sudan. Small unit factories were established in cattle areas still more remote than those supplying the butter and cheese industries and here the cream from the daily supplies of fresh milk was cooked to render it down into the product known in Nigeria as C.B.F. So great was the popularity of this high grade cooking fat that the demand ultimately rose far in excess of supplies. I am speaking from memory now, but I think I am right in saying that during the war years production reached a total of 35 tons per annum.

Meat.—Most natives of Nigeria are accustomed to eat what meat they can afford, so that the trade in slaughter cattle has always been considerable, estimates varying between 500,000 and 600,000 head a year. During the war the presence of large numbers of troops in the country greatly added to the normal demands of the civil population and every effort was made to intensify and expand existing cattle fattening schemes whereby animals are hand-fed on an intensive ration for three to six months or more with an ultimate gain in weight of at least two hundredweight.

Inspection of cattle before railing to the south from stations in the Northern Provinces was a by no means unimportant part of the duties of the Veterinary Department. Debilitated and diseased animals were thus eliminated and the number of casualties on the trying train journey of 700 miles considerably reduced. Furthermore, in order to guard against outbreaks of anthrax amongst these slaughter cattle, each animal is now vaccinated at least 14 days before railing. The movement of trade cattle by road through Nigeria is controlled by means of a series of inspection stations and control posts situated at intervals along the international boundary and the trade routes. At these centres they are vaccinated against rinderpest and sometimes also against contagious pleuro-pneumonia; more recently anthrax vaccine has also been given. Though the work requires a large staff of African inspectors under constant European supervision, this is undoubtedly justified by the enormous reduction in the risk of spreading serious diseases throughout the country.

In the Gold Coast the Veterinary Department during the war years was responsible for the maintenance of a reserve herd of from 1,000 to 2,000 slaughter bullocks and also for the import and delivery of 25,000 bullocks per annum from French West Africa. The reserve herd consisted of local Gold Coast cattle. I have no information of the part played by the Gambia Veterinary Department in maintaining the supplies of slaughter cattle during the war, but at any rate it can be assumed that the anti-rinderpest campaign which for the past few years has been so rigorously and effectively pursued by Dr. Hall and his staff made an important contribution to the meat supplies of that colony required during the war

Pork and Bacon.—I cannot leave this account of our war-time activities without some reference to the new and important pork and bacon industry which was first established in Nigeria by the Veterinary Department in 1940 by the introduction of a small herd of pure-bred large white pigs received from the Gold Coast Veterinary Department. In the early stages the dressed carcases were railed to Lagos in an insulated cold storage van, to be sold as fresh pork, but after a time it was decided to erect a small factory at the Department's headquarters at Vom, where the carcases could be made into bacon in order to allow of a more even distribution of supplies throughout the country.

The success of our original experiments in pig breeding, actually commenced some years before the war, soon prompted others to follow our example, and it was not long before pig breeding was being conducted on a fairly large scale in different parts of Nigeria, both by the Agricultural Department and by non-Mohammedan African farmers. The pigs from this outside source were converted into bacon at a newly established factory in Lagos operated by a commercial firm and pig breeding grew so rapidly that this factory was soon handling up to 400 carcases a month.

The output of bacon from the Vom factory quickly reached the limit of the cold storage capacity of our improvised buildings, that is to say, 6,000 lb. a month. Though our pork and bacon industry was established as a war-time effort to supply a much-felt want the success of the venture clearly promises a sound commercial future for any large-scale expansion of the industry in Nigeria and proves that it has come to stay.

The success and the profitable nature of the Veterinary Department's pig breeding and feeding industry is largely owing to the fact that it forms a convenient adjunct to the manufacture of butter, cheese and C.B.F. The large supplies of such by-products as separated milk, buttermilk and cheese whey provide cheap and excellent food on which these English pigs thrive remarkably well and produce a high grade bacon carcase.

In the Gold Coast the part played by the Veterinary Department in the development of the pork industry during the war was also an important one in that they supplied from their breeding herds of pure-bred English pigs at Pong Tamale all the basic breeding stock for the large army pig farm with its 1,500 pigs at Accra and for the numerous Agricultural Department farms throughout the colony. The Department took no part in production but performed the useful and essential function of supplying breeding stock to Government farms and African breeders, and in order to meet the extra demands consequent upon war-time production had

greatly to increase their activities at their Pong Tamale stock farm.

In order to provide for more efficient production and on a larger scale a scheme has been submitted to Government to amalgamate all these industries under one control with a central factory suitably situated. It is my contention that the development and control of these industries in meat and dairy products should be in the hands of the Government and not left to private enterprise, for the reason that a Government controlled enterprise would better safeguard the interests of primary producers by providing the stable and fair markets which are the necessary incentive to livestock owners to follow the methods of animal husbandry which are most likely to increase productivity.

Hides and Skins.—There is a very large trade in sun-dried hides and skins from Nigeria. Besides being an important economic asset to the livestock industry of Nigeria, this trade has made an important contribution to the military and civil requirements of both the United Kingdom and the United States during the war.

Customs returns for the past few years show a fairly constant annual export of about 800,000 hides, between four and five million goat skins and one and a half million sheep skins. By the efforts of the Veterinary Department in directing and encouraging the better flaying and drying of hides and skins over the last 20 years, a very decided improvement in the quality of Nigerian products has been effected and overseas demands have greatly increased. This work has added greatly to the normal duties of veterinary officers who, until quite recently when special European hides and skins inspectors were appointed, have been responsible for training butchers as well as their own African inspectorate staff in the correct methods of flaying and drying of hides and skins.

An intensification of our previous efforts was called for during the war and as a result of these efforts larger quantities of suitably prepared hides and skins were available for overseas markets at a time when they were in great demand.

After hearing the bitter complaints of English tanners about the damage done to African hides and skins by bad flaying I was surprised when visiting a large London tannery a few years ago to note how many English sheep skins were damaged by bad flaying · but perhaps in this country the butcher's time is more valuable than the skins

Goat Skins.—Goat skins, which are a particularly valuable asset to Nigeria and of the several different types found in the Country, that of the Red Sokoto breed is the best. Red Sokoto skins, which are in large demand by both British and American manufacturers for making into high grade glacé kid leather, command the highest price. It follows therefore that anything that could be done to preserve and foster this breed would be to the advantage of breeders, exporters and manufacturers alike. For many years past the Veterinary Department has given close attention to this matter and by the castration of non-red male goats and the slow elimination of non-red females has cleared the whole districts of Sokoto Province of inferior breeds. In the course of this campaign of breed improvement some 50,000 castrations have been carried out annually in Sokoto Province alone. In other areas of Nigeria, where the only slightly less valuable Kano Brown goat flourishes, the same policy of breed improvement is being carried out.

General

Arising out of this account of our war-time achievements and in conclusion I should like to touch on one or two points. First, I should like to draw attention to the value of large-scale prophylactic vaccination as a method of dealing with animal disease.

In Nigeria and other West Coast colonies where this policy has been conducted energetically for the past number of years, rinderpest, that greatest of all cattle scourges, and some of the other major epizootics have been brought under control and are now within measurable distance of complete eradication. Indeed, in the eradication of rinderpest from the whole of Africa the only issue involved is the concerted action of all the countries concerned in a whole-hearted and energetic campaign of preventive vaccination on a large enough scale, and I hope that it will be possible before long to hold a pan-African Veterinary Conference to discuss this project and formulate definite plans.

Now the point which I wish to discuss here is the possibility of dealing with at least some of the major disease problems of this country by this same method of prophylactic vaccination. In this tight little island of ours surely it would not be a difficult matter to carry out vaccinations as frequently and as extensively as to secure the ultimate eradication of those diseases against which a reliable vaccine is available ?

In carrying out this policy private practitioners would in future render valuable service to the livestock industry and find profit for themselves and would become as much if not more concerned with the maintenance of livestock—and this would include poultry and other small animals—in health and full economic productivity as with the actual cure of disease. If this policy were to be really successful general vaccinations would have to be given free and the whole cost of the field services and vaccine production would have to be borne by Goxernment who might in return consider the advisability of imposing an annual tax on livestock to meet the expenses involved.

The second point which I should like to discuss is the part to be played by the Colonial Veterinary Service in the development of the livestock industry. The question might well be asked—"Why should the conduct of the food production schemes in Nigeria have been undertaken by the Veterinary Department and not by the Agricultural Department ?" It is probably true that the Agricultural Department might have conducted these schemes with the same success as followed our activities, but it is my contention that the industries in animal products are of such vital importance to a prosperous livestock industry—which in turn is so largely dependent on the veterinary work of disease control and of measures for securing better breeding, animal management and a higher standard of nutrition—that their conduct cannot be left to other departments without at least some loss of efficiency.

It is of little practical value to bring disease under control and to build up larger and better herds if no proper action is taken to secure the full economic utilisation of their resources and the conversion of these resources into readily appreciable cash values. After all, as I said earlier, it was not until the industries in animal products had brought home to the authorities the value of a prosperous livestock industry that the importance of the work of disease control and other measures for securing full productivity was fully realised by Government. These industries are in a way our window dressing and their establishment and control should be our responsibility operated fy a special pranch of the Colonial Veterinary Service.

I do not however believe that the training which graduates receive at our colleges to-day fully fits them for all the work associated with livestock development, which besides disease control embraces breeding, feeding and management, but I do contend that their general training, experience and whole mental outlook provide the proper basis on which this knowledge should be built. And this brings me to my third point. In declaring it to be in the best interests of the livestock industry that the Colonial Veterinary Service should assume all the duties associated with livestock development we must be certain that we do indeed possess the qualifications necessary to carry out this work successfully and it is an urgent need that our Veterinary Education Authorities should see that the curriculum of study does provide the adequate training, scientific and practical, in breeding, nutrition and animal management and in the industries in animal products, that will enable our graduates to give sound advice on these subjects.

One final point and I am finished.

In the creation of a Colonial Veterinary Service, capable of undertaking not only measures of disease control, but all duties associated with livestock development, the Colonial Office and Colonial Governments have a big part to play. These authorities must ensure that the conditions of service for veterinary officers are such as will attract the best men into the Service and maintain their keenness and efficiency throughout their period of service. At the present moment these conditions are not satisfactory. While the initial salary for entrants to the Colonial Service may be satisfactory enough at £630 going up by annual increments to £1,000, the present conditions of service fail in that they do not provide a sufficient number of senior posts with adequate rates of salary above the long vrade.

In Nigeria. and the same holds good for other colonies, only two senior posts exist above the long grade, *i.e.*, Director and Deputy Director of Veterinary Services—or a third, if we include the post of Deputy Director of Laboratory Services—and because of this lack of prospects of further advancement men at the top of the long grade are apt to lose interest in their work and simply to live for the time when they can retire. This outlook is bad both for the men themselves and for the Service.

I put forward two recommendations which would improve the present conditions of service. One is a break in the contract of service after ten years when a man can retire with a gratuity and the other is in the creation of additional senior posts above the long grade with adequate salaries attached to each. The salaries of Directors and Deputy Directors are also in need of revision. These modifications in the conditions of service are necessary if men of the right type and with the proper qualifications are to be recruited and retained in the service. Another change which is urgently called for is the unification of the Colonial Veterinary Service and I would even go further and advocate that its direction should be under a central administrative executive authority in London. Such an organisation would correlate the activities, both field and laboratory, of the whole Colonial Veterinary Service and would besides overcome the difficulty of those small colonies that because of their size are unable to bear

the financial burden of the experienced Veterinary Service which their livestock industries may require. Under such an organisation, also, officers would rise to senior posts, of which there would be an adequate number, independent of the financial position of individual colonies. When these improvements have been brought about and when our responsibilities have been enlarged and our professional status thereby improved, some credit for the change can rightly be claimed by those in the service who during the war contributed so generously and so efficiently each in his own way and to the best of his ability, to the efforts of the colonies in the allied cause. These men have shown to Colonial Governments the value of a prosperous livestock industry to the economic and social life of the community and the important part played by a keen, efficient and adequately equipped Veterinary Service in securing this prosperity

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The President: At this point I would just like to say "Thank you, Capt. Henderson." I have promised, in order to enable the picture of the West African colonies to be seen properly, to ask Dr. Hall, the Director of Veterinary Services in Sierra Leone and the Gambia, to follow Capt. Henderson.

General Discussion

Dr. J. N. Hall (Sierra Leone and Gambia): I consider myself extremely fortunate in being able to be here to-day and attend the Annual Meetings of this Association. It was two years ago that I heard a very interesting paper read by Mr. Smith on the Colonial Veterinary Service, and I am glad to see him again at this meeting, when two more important papers were read on the Colonial Service. I consider the Association very fortunate in having obtained the services of Dr. Carmichael and Capt. Henderson, both men of many years' experience in the Colonies and well able to speak on their respective subjects.

I have been asked to speak to-day—I cannot say "open the discussion," because I had not seen the papers until this morning, so I can only briefly survey both papers and ask a few questions and try to add a little about veterinary activities in my part of the world. I congratulate both Capt. Henderson and Dr. Carmichael on dealing with so comprehensive a subject in such an interesting manner.

It is some years now since I was in Uganda, and it is surprising to me how short a time after one has left a colony that one loses touch, especially during those periods of war, where there have only been periodic reports. I have not been able to obtain regularly reports from the East African colonies, and hence one has lost considerable touch with the activities of what has been going on. I knew East Africa well, but it amazes me to hear the vast changes that have taken place since I was there, in every branch of work and research. We cannot comprehend how vast the field of work has been and so much accomplished in a period of a few years.

There are one or two questions I would like to ask Dr. Carmichael with regard to Uganda, which are of rather particular interest to me. When I was there contagious bovine pleuro-pneumonia caused a lot of trouble: is that disease now eradicated in that colony? There were great hopes at that time that it would be. If so, what were the methods employed? Was it by inoculation with an attenuated strain and slaughter of infected animals, and was that vaccine found to be effective? Was the vaccine made in the colony or was it a strain imported and was the Kenya strain used? I am having a great deal of difficulty at the present moment with certain vaccines obtained in West Africa. In Uganda, again, I see that they are using the desiccated virus against rinderpest. Has the old method of virus and serum now been abolished or is it still used, and in Dr. Carmichael's experience of the desiccated virus does it give the strong immunity and long resistance that the old method of immunisation gave? I have not had experience with desiccated virus but I shall commence work on it when I go back to Gambia, and early in January I hope to start trying it out on a large scale. Then there is the question of transport. Dr. Carmichael stated that they sent the virus by air: well, that is very easy in a colony like East Africa, but in a colony like Sierra Leone and the Gambia, outbreaks may be miles apart, transport is difficult and dependent on motor cars and railways. How long is that virus going to keep under those conditions, even if sent in an ice box or thermos flask? Would it last at the average tropical temperature, say, round about a 100? Would the virus deteriorate in 48 to 72 hours?

Re trypanosomiasis—are mass inoculations with tartar emetic still carried on in Uganda, and are they found to be effective—because in a country where tsetse fly exists in certain areas or extensively, with a method of inoculating animals where the resistance set up only lasts for a short period, surely animals will become reinfected? Where are you going to stop? Where is the end point? Capt. Henderson has already mentioned 23,000 head of cattle were inoculated last year by his staff—are the results followed up and if not how is the value of the inoculations arrived at?

With regard to Nigeria, where I have been more recently in contact, even there I have not seen any of Capt. Henderson's recent reports—that again is due to the war. There are a few points I would like to ask him, and again I come back to the subject of pleuro-pneumonia, which is causing serious losses both in Sierra Leone and the Gambia. We are at present obtaining our vaccine from the Gold Coast, and the Gold Coast strain, I believe, came from Nigeria. We have found that inoculations with the vaccine do not give a long resistance. Animals are breaking down within periods of three months and six months, and any period after six months very frequently. Has he found the same experience in Nigeria?—because it is rather serious if a herd of cattle is inoculated, and after three months they become naturally infected.

There are many other points, particularly with regard to the research work, I would like to ask, but there is not the time to go into detail. I wish we had more opportunity for discussion. An important matter is the development that has taken place in animal production in Nigeria, which has been extensive in the last few years. The starting of the Veterinary School will be a very great help, and I will take the opportunity of sending my assistants there, and later, when the veterinary laboratory at Vom is again functioning on a full scale, it will surely be the main centre for research in the West African colonies and save waste of time in other centres. Those small laboratories which have been set up throughout the smaller colonies will carry out only essential local research work, and most vaccines will be supplied from the main laboratory.

With regard to what Capt. Henderson mentioned about having had no news of what little Gambia had been doing in the war, there again we have not been in close contact recently. Gambia is a small colony—the smallest colony we have in Africa—and the cattle population is small. Rinderpest was the more serious disease there, and after investigations were concluded, inoculations were first started in 1933, the department gradually developed, and eventually a small laboratory was started and that should be functioning next year.

Rinderpest has been controlled by systematic inoculations. At one period in 1939 for five months there was not a single case of rinderpest in the colony, but when war broke out my small staff and myself had to turn our attention to helping the Government with meat supplies. This became a serious problem when the Vichy Government were rather antagonistic and cut off supplies of all cattle coming into the country. There was a certain amount of smuggling and rinderpest was introduced again, and other diseases from which Gambia previously had been free. So our part in the war was mainly to try to feed the civil and military population and to keep rinderpest and other diseases under control. It has been a very hard struggle, with a very small staff to do it. We undertook to look after, for a long period, over a thousand head of cattle and reserve them for emergency together with local stocks; we managed to keep going until conditions opened up again and more cattle were allowed to come into the colony. To-day rinderpest has been eradicated from the Gambia, but only for the time being, because there is free interchange of cattle between French Senegal and the Gambia, and at any time it may be introduced again.

The cattle population of the colony is now over 75,000, or more than double the number since the introduction of the immunisation campaign, and I hope that in a very short time, say about five years or so, the country should attain and reach its maximum of about 100,000 head.

As I said, gentlemen, there is much I want to say and ask both Dr. Carmichael and Capt. Henderson, but it will be impossible to have their replies in the short time we have at our disposal and I regret I will have to stop. It is with much regret, too, I am unable to tell you more about veterinary work and all that has been accomplished in the Gambia. So very little is known of that colony, but the department with a small African staff has very considerably helped the colony to pass through a difficult period of five years during the war.

The President: While I am sure we have every desire to help the members of our profession home on leave from their own colonies I feel that it would not be fair of me if I did not interpose at this stage and say that I do not see how we can ever reach a conclusion if we enter fields of detailed scientific discussion. I am sorry, but I do feel that I shall have to protect the two principal speakers by asking those of you who intend to contribute, to keep to the Achievements of the Service during the War and hope that there may be an opportunity, by mutual discussion, to get questions of detail of scientific matter answered otherwise. I

do not think either of our speakers came prepared to deal with minutiae, so that from now onwards I am afraid I am compelled to limit the discussion.

Major Frank Chambers (Wolverhampton): I must confess that I came here this morning prepared to be slightly bored by the subject, but I have changed my mind and I was fascinated, and I think we have all had a real literary treat; no one could have delivered an address more ably, I think, than Dr. Carmichael, who kept our attention riveted.

It is about 35 years ago since I was in Equatorial Africa, but I marvel at the stupendous task carried out by that Department in immunising 400,000 head of cattle over so wide a territory: only those who have had dealings with the natives can recognise the difficulties of persuading them to bring the cattle. As you all know, the natives' cattle are their capital—they buy their wives with them: if you have heifers you can buy a luscious female, but no cattle means no wives, no wives no children, no children no herdsmen, no cultivation, no native gardens, and when I think of the work done by the Department, and the propaganda in persuading these natives to bring their cattle forward for sale—well, I simply marvel. The mentality of the native must have changed since my days.

The question of East Coast fever interested me: the speaker said no method was known for immunisation. Surely Sir Arnold Theiler's work in 1910 must be known, because I was out there when East Coast fever came in, and in 1912 we immunised many hundreds of thousands of transport oxen. The country was in a state of chaos through lack of transport, food rose to a tremendous price, and something had to be done, and a method was worked out by which an injection was given of peptonised spleen from infected cattle, and in a short time transport oxen were on the road again. I can quite understand that that method would be of no value in dealing with cattle taken for slaughter.

The other point I wanted to bring up was that the training of a veterinary surgeon enables him to deal with subjects other than his own job. I remember in the last war being at Number 3 Reserve Hospital, which was a show place in the Command—so much so that other officers from other countries were always brought there and shown round what was a very ably run and well constructed place. The other point was that in North Russia in the last war, I was out there and there was nothing to do in the veterinary world and for some unknown reason they gave me the job of Director of the Slavo-British Allied Legion, and my task was to recruit and have medically examined (which was a job), equip and train a collection of Russians and Czecho-Slovakians and Yugoslavs, and fit them for operations down the line. I think I did a fairly good job, but eventually, of course, my own work came along and I was moved, but my experience all over the world has been that a young fellow trained as our young men are trained, fits him for jobs other than his own and he really makes good.

I would like to thank you again, Dr. Carmichael and Capt. Henderson, for two most excellent papers.

Mr. Ll. E. W. Bevan (formerly of Rhodesia): I will not exceed the limit laid down, but I should like in the first place to thank Capt. Henderson and Dr. Carmichael for their most excellent addresses. I feel that to-day is a milestone, as it were, in the history of the Overseas Veterinary Service. Although workers overseas are rather forgotten by people at home, nevertheless for many years they have been bearing "the white man's burden" and they have been bearing it well. They have added to the honour and glory of our profession.

I think that it is a long time ago—it was in 1914—that I first saw Capt. Henderson: it was a somewhat convivial meeting and I do not propose to "give him away"! Professor Kearney was there also, and I do not propose to say more about that, but I would like to emphasise the point that I was a visitor in Kenya and I had the great privilege of meeting there the late Colonel Robert Stordy, and I stayed for many weeks with my dear friend, the late Mr. Eustace Montgomery. They were pioneers in that country of our profession, and very fine pioneers they were. One of the reasons for the somewhat hectic evening that was spent was a feeling of annoyance which existed in the Veterinary Department at that time at their subordination to the Agriculture Department. I think Capt. Henderson is nodding his head to say that I am correct: it was a very sore point and I think it has been a very sore point ever since. There is no doubt about it, the veterinary profession is the keystone of agriculture: without the veterinary profession no progress can be made in agriculture, not only in the colonies, as in this case, but in this country. To-day, gentlemen, it looks as if Lord Keynes may be successful, and barter the Empire for "a mess of pottage"; we may well starve if we cannot get supplies from overseas—from our Dominions. I feel this is a milestone in veterinary science, in that it has brought to the attention of the people at home how important we are, not only in the colonies but in the dominions.

In the dominions they are ahead of us in this country; they fully realise the importance of veterinary service and veterinary research. If I had time I could tell you a lot about it. Let me, for example, mention the Scientific and Industrial Research Board of Australasia: in that country and throughout the war, in spite of depleted staffs they have spent some £500,000 per annum in industrial and agricultural research, a very large proportion of which has been devoted to veterinary research in connection with the animal industries.

The same obtains in all enlightened parts of the Empire, and although this is the "day out," as it were, for the Colonial Office, I want to remind you of all the work which is being done in other territories which do not come under the aegis of the Colonial Office. Capt. Henderson has mentioned our friend Dr. Edwards and the good work he performed in India many years ago. In the corner I notice Mr. Chase, formerly Chief Veterinary Officer in Bechuanaland. I well remember in or about 1900 when I was a student, seeing him off to South Africa where he went to join the famous Dr. Hutcheon, the pioneer of Veterinary Science in that country. He had to contend against the innumerable diseases which devastated the flocks and herds in that continent. In later years, Sir Arnold Theiler, by reason of his association with Botha and Smuts, was able to create the great Onderstepoort Laboratory where such magnificent work has been done. There also he established a veterinary school from which, I venture to state, graduates are better trained in tropical medicine than they are in this country. As the result of the efforts of the veterinary profession, South Africa has been converted into a fertile, pastoral country.

If time permitted I could give you many other examples of the valuable work performed by the veterinary profession overseas, but I am afraid I have already exceeded my allotted time. I must again thank Capt. Henderson, who has borne many responsibilities extraordinarily well since last I met him; and Dr. Carmichael who, although still quite young, has done magnificent work in research. There are still many fields for him to conquer.

Dr. W. R. Wooldridge (Chairman of the Association's Overseas Committee): I think you will all agree that in the papers put before us to-day we have every justification for the efforts which the Association is making to improve the status and the conditions of service of our colleagues serving in the Colonial Service. We have had a difficult task on the Overseas Committee in getting information, collating it and preparing it when our colleagues abroad are so far from us, but I would like to record here to-day that without their invaluable help we could not have prepared the case which we have recently put to the Secretary of State for the Colonies.

I think also there is a lesson to be learned from what we have heard to-day. The Colonial Veterinary Service has been grossly undermanned, but this has not stopped them from initiating and carrying out tremendous tasks. One cannot help feeling that if the same initiative and drive were present in this country we might here achieve very much more than we have been privileged to achieve so far. I would like to assure our friends from the Colonial Service that we will do our utmost as a corporate body to secure those conditions which their work demands, and I think, Mr. President, that from our preliminary conversations we can go so far as to say that we have made considerable headway in that direction already.

Professor W. Kearney (Veterinary College of Ireland): As one who has had experience of the territories referred to by Capt. Henderson and Dr. Carmichael I will simply say this, that the accounts they have given us of the services rendered during the war years are almost incomprehensible to those of us, as Mr. Bevan has pointed out, who saw the beginnings of veterinary service out there. Time prevents me from referring to the fine achievements accomplished but I feel I must point out the debt that the profession here at home owes to the younger generation of veterinary surgeons who have maintained such a high standard of efficiency under tiring and difficult circumstances in the tropics of Africa for five and a half long years of war. Out there men do not think or talk much of their own interests; their sole concern is service, with the consequent results that we have heard here to-day. They may indeed be aptly titled "The Silent Service of the Veterinary Profession," and I would suggest for your serious consideration, Mr. President, and for that of your Overseas Committee, that one of the best ways of paying an overdue compliment to that service is to compile an account of its activities since its initiation and have it published in serial form in the Association's journal. We shall then see what a grand lesson that service is to us here, and the world over.

The President: Before calling on Mr. Smith I would like you to allow me to say something concerning wider issues, which have only been touched upon this morning.

First of all, I would like to underline what Dr. Carmichael said of the lack of knowledge and appreciation there is, not only in the profession but throughout the whole of Britain, of the size and

importance of the Empire and of the Colonial Empire in particular. We may forget that there are five hundred millions of British people, and that that is practically a quarter of the total population of the world, and we forget, I think, that most of these people speak or know English. If you add to that number the numbers of the English-speaking peoples of the United States of America, and if they could all speak with one voice, they could say to the world "Yes" and "Yes" it would have to be; if "No," "No" it would be.

It is essential for us all to do everything we can, even though only in a small way, but of an ultimate importance which is far bigger than our own domestic interests, to keep this great Empire intact. Do not think of this as irrelevant; what has been happening in so many of our colonies for so long has been a tendency to concentrate upon and exploit a single crop—a single, mono-culture system—sugar, coffee, cocoa, bananas, coconuts, citrus, and so on. Highly organised trade resulted and trade brought money and with money came the chance to buy the things, including tinned foods, from other countries, which the African *wanted*, not what he *needed*. To know how to spend money properly requires the proper outlook on life and a stable background. In the absence of this money can be a curse, for the possessor is then tempted by the glamour of life's luxuries; luxuries lead to idleness, and idleness breeds discontent with all the unfortunate results which follow. Social unrest is a final product of a completely unbalanced economy.

If you have an unbalanced economy resulting in the purchase of only luxury goods, and if these are paid for by exploiting the soil, there is only one result, which must follow sooner or later: the soil becomes exhausted, production falls, profits shrink and hardships follow. Nature may restore the balance by producing disease in that crop. There are innumerable instances all over the world of this in actual progress. The ultimate consequence is famine and pestilence; some have goods and some have not, and the consequence may then be a return of tribal warfares. This is the background I would ask you to keep in mind when considering veterinary service in these areas.

In any constructive study, we should examine the factors of a balanced economy. Fundamental to survival and the capacity for any colony to take its place in the community of nations, is that it shall have a balanced economy and a happy and contented population. Where a colony can produce wealth by selling something from the soil it should do so, provided it does not overdo it. In most colonies there is now a limit imposed to selling capacity; so there is a tremendous need for a balance in the home economy of almost every colony in the Empire. More food of all kinds must be produced, for the world is short of food. Animal foods are in shortest supply and the livestock industry must be greatly increased to provide extra food, employment, and money; and to maintain soil fertility.

In consequence we see that a balanced economy must depend fundamentally and be based upon a livestock industry, and a healthy livestock industry depends upon a basis of good veterinary services.

We must keep this complex background always in our minds for though outlined in only a few words it is worthy of careful attention when viewing the magnitude of the achievements of the Colonial Veterinary Services. They are contributing a vital part to Empire stability, and we are fortunate in having had such a clear picture presented to us to-day. May I now call upon Mr. John Smith of the Colonial Office.

Mr. John Smith (Advisor on Animal Health to the Secretary of State for the Colonies): I have been asked to propose a vote of thanks to Capt. Henderson and Dr. Carmichael, and it may be some of you will think I am not quite the one to do this, but I do think that on this occasion I am the one. My intimate connection with the work in Africa ceased, as you know, some eleven years ago, and during these years I have been sitting in Whitehall, doing what I could to help my former colleagues, but I have been sitting there learning in detail that of which only an outline has been given you to-day. I can assure you that, as those reports and information from all sources have come into the Colonial Office, it has been with very great feelings of pride, both in the men and in the profession, that I have read them, and I have regretted that they could not be put forward year by year.

It has been mentioned, I think it was by Professor Kearney, that an endeavour should be made to set what has been done upon record for all time, and I suggested, some years ago, to those concerned that they should have their diaries reasonably filled, so that, as soon as it was possible, someone should undertake the correlating of all the information and put it into some form that we shall have on record.

Now I do not want to go into any details—we are past the time which the President has appointed for the close of this meeting—but I do not wish just to thank on your behalf the two who have spoken this morning, but I wish on your behalf, and I am sure you would wish me to do this, to thank not only them but their colleagues as well for what they have done overseas during these years. To me the great astonishment is, first of all, how they have managed to do the work. I have experience of the conditions and I know that to start a dairy industry amongst cattle which could not be expected to give more than a pint a day, which is a very poor output, needs guts. To start making bacon and butter when there were very few people about the place experienced in their commercial manufacture—if the information I have is correct, when Capt. Henderson said, "We will make bacon," he added, "By the way, is there anybody here who knows how to do it?" and the answer was "No"—is far from easy. But these people have had the guts to get down to it and do it, and to say that they have been under-staffed is to put it very, very mildly.

There have been several references to that wonderful effort to stop rinderpest from going down from East Africa to the two Rhodesias and the Union, from which this country and our Allies were drawing the most vital stores. If rinderpest had got into those two countries we should have been unable to obtain a tremendous amount of stuff which we could not do without. I can see now many of us sitting in Africa saying "What is the best to do?"—and the result was that within a few months of that date four million head of cattle had been immunised in a country where there is very little water, no roads, no facilities of any kind. Just think what it meant to get four million head of cattle to the immunising places along the borders! It was the first example of what can be done when the staffs of adjoining territories come together and take their jackets off—and in a country like that their shirts as well. The next thing; I was called to a conference at home which dealt with the position of leather: hides were wanted in unlimited numbers. Word went to our colleagues in Africa that the production of hides was of vital importance to us and to our friends across the Atlantic—many of those from Capt. Henderson's side went across there—and the hides were produced. Therefore I feel, knowing perhaps a little more than you have been told, and realising that the genius for understatement which we are all said to possess has been exhibited very, very much this morning, I can on your behalf say to Capt. Henderson and to Dr. Carmichael, "We thank you for coming here; we thank you for giving us just a few details that we did not know before, and we thank you—and behind you those staffs in all the colonies who have been responsible for this effort." (Applause.)

The President: At this late hour I intend to do no more than formally to convey to Dr. Carmichael and to Capt. Henderson the very sincere thanks of us all, in the sentiments so ably expressed by Mr. Smith.

DAIRY HERD IMPROVEMENT IN THE U.S.A.

At the beginning of 1944 there were 293 co-operative bull associations, 89 had records indicating an average production for their a total of 62,473 cows. Of the proved sires used by these associations in this country with a membership of 6,213 dairymen owning daughters of 408 lb. of butterfat per cow per year.

January 1st, 1944, there were 96 artificial insemination associations with a membership of 28,627 dairymen owning 218,070 cows. These associations were using 657 bulls, approximately one bull for each 331 cows. Of the 657 bulls 127 had proved-sire records indicating an average production for their daughters of 420 lb. of butterfat per cow per year.—*Ann. Rept., U.S. Bureau of Dairy Industry for* 1944.

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U.S.A. "NATIONAL DRIVE TO ERADICATE ANIMAL PARASITES"

There are so many parasites now preying on America's animal population, it was recommended by the committee that the Department of Agriculture prepare a special check list of animal parasites by states, single out those which constitute major problems in each area and aid in a national drive to eradicate them. The committee also recommended that veterinary schools give increased attention to the study of parasites and the losses caused by them among the nation's livestock and poultry.—A.V.M.A. Committee on Parasitology.

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"Indiscriminate vaccination of adult cows may seriously hamper the nation's fight to stamp out brucellosis in this country. Testing, gradual elimination and systematic vaccination, together with sanitary measures, are probably our most widely applicable plan of control. Swine brucellosis is on the increase in this country, and is causing serious losses to farmers. 'We cannot be reminded too frequently that the swine brucellosis organism is highly pathogenic for man.'"—A.V.M.A. Committee on Brucellosis.

CLINICAL COMMUNICATION

Copper Poisoning in Sheep

I. H. FINCHAM

Veterinary Laboratory, Wye

This report is presented through the courtesy of Mr. J. G. Cattell, M.R.C.V.S., D.V.S.M., a client of whom experienced the condition in his sheep.

History.—Deaths occurred early in June, 1945, in a flock of Kent tegs grazing orchard land. The orchards had been treated with insecticide sprays on three occasions, *viz.*—

March 1st to 5th, with D.N.C. spray; March 29th to April 9th, with Bordeaux mixture; May 15th to 19th, with Bordeaux mixture containing a greater than normal proportion of lime, and some nicotine: Copper sulphate 10 lb., lime 40 lb., nicotine solution 8 oz. (? of 40 per cent. stock solution), per 100 gallons of water. An interval of three to five days was allowed between completion of spraying and entry of sheep into any orchard.

Symptoms.—These lasted for about 24 hours, the affected sheep being described as "pothery," *i.e.*, generally inco-ordinated in movement, and weak. Some cases exhibited no symptoms, being found dead. The number of deaths totalled 12 out of 178 sheep, but 77 of these were bought-in tegs, said to have been in far better condition than those home-reared, and none of the former was visibly affected although the flock had grazed under identical conditions throughout. The conjunctival mucous membranes were a dirty yellowish-orange in colour, with some discharge evident around the inner canthus in many of the sheep.

Post-Mortem Examination.—All tissues appeared jaundiced, similar to the conjunctivae.

The liver abnormality was the most obvious change in each case, this organ being slightly enlarged, yellow in colour and very friable.

Heart.—Excessive pericardial fluid. Some small sub-epicardial haemorrhages. The blood was chocolate-coloured and thick.

Kidneys.—Very marked lesions, generally described as haemorrhagic nephritis. They most nearly resembled plum-coloured marble, being enlarged and with dark, haemorrhagic mottling apparent on the external surface.

Spleen.—Condition resembling that known as "blackberry jam." Little food was found in the alimentary tract, but no change was noted in the intestinal wall.

Analysis.—Analysis of two liver specimens for copper was carried out by Mr. Arnaud, County Analyst, the following amounts being found:—

No. 1. 48 mgm. per 100 grammes liver.
No. 2. 62 mgm. per 100 grammes liver.

The normal range is given as 0·2 to 29 mgm. per cent. (Eden), so in spite of the general unreliability of liver analysis to confirm copper poisoning, the amounts found in these cases were certainly significant. Liver No. 2 was from a sheep which died at the end of July, having apparently shown no symptoms meanwhile since the spraying.

Discussion.—Although relatively few sheep were lost, allowance must be made for the 77 in better condition, since the livers in these cases were probably better able to detoxicate the poison. This leaves a 12 per cent. loss, together with considerable depreciation in condition in living animals, in the remainder of the flock.

Spraying of the orchards was apparently carried out as in previous years (except that the high lime content was an innovation). During and after spraying the weather was dry, and little growth of grass occurred during April and early May, while it was noted that the orchard grass at that time was tall and woody, and appeared quite blue subsequent to spraying. This combination of factors may explain this occurrence of copper poisoning, there being no palatable fresh grass to attract the sheep or to dilute the contaminated grass ingested. Also, the longer grass tufts remaining around the bases of the tree trunks after mowing may be more highly contaminated with any spray used, owing to drainage along the branches and down the main stem, and may be eaten in the absence of other herbage.

No evidence could be found to suggest contamination of the water supply (main water, direct to a tank situated out of likely range of the sprayer and not under the trees).

Note.—The action of rain in washing grass free from contamination by Bordeaux mixture is slight. Once dry, this combination of chemicals forms an insoluble copper salt which resists washing, this property being one reason why the mixture is used as an orchard spray.

Weekly Wisdom

Protein and milk, both provided in sufficient quantities over the next ten or twelve years, may well prove to be decisive factors governing the fate of mankind and the trend of civilisation for generations to come.—Sir George Stapledon.

IN PARLIAMENT

Purchase Tax Retained on Cars Used for Professional Purposes

On the Committee stage of the Finance Bill, Major Tufton Beamish, supported on the Order Paper by several Members, moved for the insertion of a new Clause providing for the exemption from purchase tax of motor cars for use by registered medical practitioners or by veterinary surgeons in their professional duties.

In moving, Major Tufton Beamish countered the charge of administrative difficulties made on the ground that the tax is charged at the wholesale stage when the ultimate purchaser is unknown, by saying, "What if it is? Surely it would not be insuperably difficult to remit the tax to those doctors if they had bought cars subject to purchase tax." He entirely agreed that the use of a tax-free car could not be limited to professional duties. In fact, it was obvious that if doctors did buy these cars they would use them for pleasure. Doctors had little enough leisure, as he was sure hon. Members on both sides of the Committee would agree. Surely they could not grudge them, in all conscience, what little petrol was available to them if they did use their cars in their very small leisure hours.

Admittedly the Chancellor was on fairly good ground in saying, as he had done in reply to a question: "If special exemption were given to doctors, others would claim it too, and no reasonable limit could be set to this concession." It might fairly be argued that district nurses, midwives, or even Members of Parliament, should be allowed to buy cars free of Purchase Tax. In fact, he thought they should. If that was desirable, the Government should bring that in too, but he was only concerned at the moment with doctors and veterinary surgeons. Admittedly they had to stop somewhere, but he could not see that that was a very valid argument after all. He could not see what would be the good of a grocer delivering a vanload of vegetables to, say, Mr. Snooks, if, when he arrived he found that Mr. Snooks had passed out in the night for lack of medical attention because the doctor who would have attended him felt unable to afford the very high Purchase Tax required for a new car. The same argument might be applied to veterinary surgeons.

A further question might be, "How are we to ensure that only 'registered' doctors would be allowed to buy these cars, if this tax relief were afforded? It would be a perfectly simple thing to do, because we had county medical committees whose advice in these matters could always be taken. The same would apply to veterinary surgeons.

It would be no comfort to doctors or veterinary surgeons who wished to buy these cars to be told that relief might be afforded next April. They were coming out of the Forces now, and had been doing so for months past.

Mr. Glenvil Hall asked the Committee to reject the Amendment because, as drafted, it was completely unworkable. The suggestion here was that motor cars, if used by registered medical practitioners or veterinary surgeons in their professional duties, should not be purchase taxed. That meant quite definitely that if a doctor wanted to go anywhere otherwise than on a professional visit he must either have two cars, or walk. No one was going to tell him that it was likely to appeal to a doctor that he must keep two cars, one for his professional duties not subject to tax and the other upon which he had paid Purchase Tax and which he used for pleasure visits.

The trouble with the Purchase Tax was the same trouble which the Conservative Chancellor of the Exchequer encountered who imposed this tax, and who refused claims of a similar kind in the years that followed. The same difficulty existed to-day that existed then, namely, that this tax was imposed at the wholesale stage, when it was quite impossible to know who was going to buy the car or who was going to use it. Therefore it would be entirely unworkable to adopt the suggestion made by the hon. and gallant Member although they quite realised that he wanted to do a good turn to doctors, who deserved all the sympathy and help that they could give to them; but they could not do it that way.

The proposed new Clause was negatived by the Committee. The Committee also negatived an amendment designed to remove the Purchase Tax from all medicines, drugs or other articles required for the treatment of sickness, disease and surgical operations.

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Questions

Scientific Manpower and Resources (Appointment of Committee)

Sir W. Wakefield asked the Lord President of the Council whether the Government will carry out an early survey of the national position in regard to scientific research and development work.

The Lord President of the Council (Mr. Herbert Morrison): Yes, Sir. I have decided to appoint a committee of leading scientists and others to consider the policies which should govern the use and development of our scientific manpower and resources in

the next ten years. Manpower is the most urgent problem, and I am accordingly asking the committee to submit an interim report on very broad lines at an early date so as to facilitate forward planning in those fields which are dependent upon the use of scientific manpower. At a later date the committee will be asked to make recommendations as to the establishment of permanent machinery for carrying out surveys as to the best use of our scientific resources in the national interest.

The committee will consist of Sir Edward Appleton, Sir Alan Barlow, Professor Blackett, Mr. Geoffrey Crowther, Sir Alfred Egerton, and Sir George Nelson. I am not yet in a position to announce the name of the Chairman, but to save time the committee have been asked to start their enquiry at once under the temporary chairmanship of Sir Alan Barlow, with a view to putting in hand as quickly as possible such preparatory work as they consider necessary.

Earl Winterton: Will the committee have power to enquire into the scope of the work of the Department of Scientific Research? Will that form part of its task?

Mr. Morrison: I think so. My impression is that the terms of reference are fairly wide. I think that can be done.

Coal Industry (Pit Horses)

Major Lloyd asked the Minister of Fuel and Power what regulations are in force to protect the pit pony from being overworked.

Mr. Shinwell: All horses underground are in the care of competent horse keepers and it is part of the horse keepers' duty not to allow any horse to go out to work in an unfit condition.

Agricultural Horses (Export)

Lieut.-Colonel Bromley-Davenport asked the Minister of Agriculture what is the policy of the Government at the present time with regard to the export of agricultural horses; whether this is a branch of the export trade which is being encouraged or discouraged by his Department; and whether he will make a full statement on this subject.

Mr. Collick: The policy with regard to the export of agricultural horses must be governed by the need to avoid interferences with essential food production. For the time being horses of heavy breeds, especially stallions, can be spared for export, together with a limited number of stallions of the vanner type. The position will be kept under close review, so that the export trade may be further developed when circumstances permit.

Milk Production

Sir G. Fox asked the Minister of Food the total production of milk at present, indicating the amount of the whole that is T.T.

Sir B. Smith: Sales of milk off farms in England and Wales during the year ended September 30th last amounted to 1,205 million gallons, of which 124 million gallons were T.T. milk.

Cattle (Tuberculosis)

Mr. De la Bere asked the Minister of Agriculture whether, in view of the fact that farmers cannot face the financial loss of selling their tuberculous cows and replacing them with tested animals, he will consider introducing a scheme for dealing with this problem by areas, under which the diseased cows would be slaughtered and compensation paid to the farmers by the Government.

The Minister of Agriculture (Mr. Thomas Williams): I do not accept the implications of the first part of the Question as being of general application. With regard to the latter part, the question whether further measures can be adopted to reduce the incidence of tuberculosis in cattle is engaging my attention.

Milk (Pasteurisation)

Captain Prescott asked the Minister of Food under what statutory authority and by whom compulsory pasteurisation is brought into operation in any area; and what are the basic principles deciding the making of such an order.

Dr. Summerskill: I would refer the hon. Member to Defence Regulation 55G and paragraphs 26 to 28 of Command Paper Cmd. 6454, "Measures to Improve the Quality of the Nation's Milk Supply." Pasteurisation of milk is not at present compulsory in any area.

Animal Feeding-Stuffs

Lieut.-Colonel Bromley-Davenport asked the Minister of Agriculture when he anticipates that the supply of feeding-stuffs will be sufficient to issue rations to brood mares and young stock over and above the present scheme of rations to horses used for essential purposes.

Mr. T. Williams: I am unable to say. The supply of animal feeding stuffs is likely to be limited for some considerable time, and the first call on additional supplies, when available, must be to provide more livestock products for human consumption.

Vivisection

Mr. Viant asked the Secretary of State for the Home Department the total number of experiments on living animals performed under the Act 39 and 40 Vict., Ch. 77, during the year 1944.

Mr. Ede: The total was 1,323,983. A large number of these experiments were simple inoculations and similar proceedings, performed either on behalf of official bodies with a view to the preservation of public health or directly for the diagnosis and treatment of disease in man or animals.

Dog Licences

Captain Crowder asked the Chancellor of the Exchequer if he will consider amending the present regulations with regard to the date of expiry of dog licences so that they will be valid for a period of twelve months from the date of issue, instead of lapsing automatically on December 31st each year.

Mr. Dalton: This is a local taxation duty in England and Wales, though an Imperial duty in Scotland. The change suggested by the hon. and gallant Member would complicate administration, and I am not prepared to consider legislation unless it were supported by the local authorities.

NOTES AND NEWS

The Editor will be glad to receive items of professional interest for inclusion in these columns.

Diary of Events

Dec. 8th.—Meeting of the Biochemical Society, London Hospital, Whitechapel Road, E.1, 2.15 p.m.
Dec. 8th.—Meeting of the North of Scotland Division, N.V.M.A., at Aberdeen (Marischal College), 2 p.m.
Dec. 12th.—Meeting of the Editorial Committee, N.V.M.A., 2.30 p.m.
Dec. 13th.—Meeting of the South-Eastern Division, N.V.M.A., at Maidstone (Star Hotel), 2.30 p.m.
Dec. 18th.—Meeting of the Agriculture Group of the Society of Chemical Industry, at the Chemistry Lecture Theatre, Imperial College, Imperial Institute Road, S.W.7, 2.30 p.m.
Dec. 21st.—Meeting of the Section of Comparative Medicine, Royal Society of Medicine, at the Society's House, 1, Wimpole Street, W.1, 2.15 p.m.
Jan. 3rd.—Meeting of the Central Veterinary Society, Conway Hall, W.C.1, 2 p.m.
Jan. 2nd-4th.—Meetings of Committees and Council, N.V.M.A.
Jan. 9th.—R.C.V.S. Committee Meetings.
Jan. 10th.—R.C.V.S. Committee Meetings.
Jan. 11th.—R.C.V.S. Council Meeting.

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The Loveday Report

R.C.V.S. Delegation to the Minister of Agriculture

On Wednesday of last week the Minister of Agriculture, Mr. Tom Williams, received a delegation from the Council of the Royal College of Veterinary Surgeons to discuss the implementation of the recommendations of the Loveday Report on Veterinary Education, in the hope that an early agreement may be reached between the Universities, the Royal College and the Ministry, so that the Government may take action without further delay.

The Royal College was represented by a delegation consisting of the President, Major A. B. Mattinson, Mr. H. W. Dawes (Chairman of the Examinations Committee), Messrs. J. Share Jones, Tom Hare and Donald Tutt, and Sir Arthur Olver.

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National Agricultural Advisory Service

On Tuesday last the Ministry of Agriculture announced the structure of the new Advisory Service for Agriculture which is to be established in October.

In recent years the organisation and provision of technical advice to farmers has been carried out by War Agricultural Executive Committees and specialist advice has been provided by the provincial advisory centres attached to universities and agricultural colleges. It is now proposed to have a national organisation co-ordinated and directed from headquarters.

Advice on agricultural economics will continue to be provided by staffs attached to universities and colleges, but, apart from this, the national service will include all those concerned with advisory work to farmers at the provincial centres and in the counties. This will enable the Ministry to give general direction and guidance on policy and on technical developments, to stimulate

activity in any direction or in any district where this seems desirable, to secure greater uniformity in the work throughout the country, and to ensure a proper co-ordination of the specialist and general advisory activities.

It is not intended, however, that there shall be any weakening in the interest and concern in advisory work on the part of the present War Agricultural Executive Committees or of their successors. On the contrary, it is essential that the work of the committees and the advisory service should be closely integrated in furtherance of the one common purpose of improving the efficiency of the industry. The staff of the service will co-operate closely with the agricultural education staffs of the county councils, especially with regard to such activities as farm institutes and continuation classes.

Principal Officers

The following principal appointments to headquarters staff have been made: Chief Education and Advisory Officer, Mr. J. A. Scott Watson; Senior Advisory Officers, Mr. W. K. Slater, Mr. H. V. Taylor and Mr. L. G. Troup. A number of provincial advisory officers have also been appointed.

England and Wales will be divided into eight provinces with centres as close as possible to the universities at which there are departments of agriculture or near agricultural colleges. A provincial advisory officer, with a deputy, will be responsible for the organisation of the service in each province, and there will be specialist advisory officers in (1) entomology, plant pathology, soil chemistry, and bacteriology, and (2) nutrition chemistry, animal husbandry, crop husbandry, grassland management, horticulture, poultry husbandry, and farm machinery and buildings. In some provinces there will be specialists in dairy husbandry, glasshouse production, and fruit-growing, together with scientific assistants, analytical staff and others. For the second group of subjects the appointments will break fresh ground—there have been no exactly corresponding officers in the present provincial advisory service. These posts are intended to satisfy the need for specialist advisers equipped to deal with subjects in which there have been important scientific developments in recent years. Whether all these posts are filled at the outset will depend on the field of selection.

Veterinary Investigation Officers.—Veterinary investigation officers will not form part of the N.A.A.S. but will be attached to the Ministry's Animal Health Division. They will, however, maintain close contact with the specialist advisers at N.A.A.S. Provincial centres.

County Staff

The basic county organisation will be: County advisory officer, district advisory officers, county advisers in milk production, horticulture, poultry, farm machinery, etc. The district organisation will be similar to that which has proved successful under the war agricultural executive committees. As an approximate objective one district officer will be appointed for every 1,000 farmers.

The Poultry Advisory Service already established (which covers other small livestock as well as poultry) will be integrated with the new Service.

Experimental Work

A programme of experimental work is being drawn up under the guidance of the Agricultural Improvement Council for England and Wales, and it is hoped to set up a series of experimental farms and horticultural stations throughout the country.

Pre-war members of the provincial or county advisory services will in certain circumstances have a right of transfer to the new service. Apart from the provincial advisory officers, who will be on a salary scale of £1,200 to £1,500, there will be six main salary grades, as follows:—

		London.	*Country.*	*Increment.*
Grade I	...	£900-£1,200	£850-£1,100	£30
Grade II	...	£700-£900	£660-£850	£25
Grade III	...	£400-£700	£370-£660	£25
Grade IV	(*a*)	£275-£400	£255-£370	£25
	(*b*)	£220-£400	£200-£370	£18
Grade "A"	...	£400-£550	£370-£520	£18
Grade "B"*	...	£150-£350	£140-£320	First three £15 then £18

* Entry point in this grade will depend on age and qualifications.

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Chief Economic Adviser

The Ministry of Agriculture and Fisheries announces that Mr. R. R. Enfield, C.B., has been appointed to a new post of Chief Economic Adviser to the Ministry of Agriculture and Fisheries from December 4th, 1945; and that Mr. D. A. E. Harkness, Senior Assistant Secretary in the Ministry of Agriculture, Northern Ireland, has been appointed from the same date to succeed Mr. Enfield as Principal Assistant Secretary in charge of the Economics and Statistics Division of the Ministry.

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Veterinarian Appointed to Tanganyika Legislative Council

In our last issue we reproduced a Colonial Office announcement of the re-constitution of the Tanganyika Legislative Council. In future this will consist of the Governor, as President, 15 official and not more than 14 unofficial members, and we are gratified to learn that one of the two new official members of the Council is to be the Director of Veterinary Services. It will be remembered that in its (1945) Memorandum on Colonial Veterinary Services, recently submitted to the Colonial Office, the N.V.M.A. urged the appointment, in the large stock-producing colonies of the Empire, of the Director of Veterinary Services as an official member of the Legislative Council.

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VICTORIA VETERINARY BENEVOLENT FUND

Christmas Gifts

The Secretary would be glad if donations to the Christmas Fund could be sent not later than December 17th, as that would permit the grants to be allocated, and the money distributed in good time before Christmas. Remittances to the Victoria Veterinary Benevolent Fund, Christmas Fund, 9, Red Lion Square, London, W.C.1.

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R.C.V.S. Council Election, June, 1946

The following members of Council are due to retire in June, 1946, but are eligible for re-election if nominated:—

J. W. McIntosh.
G. P. Male.
J. G. Wright.
W. C. Miller.
W. R. Wooldridge.
J. Holroyd.
Sir A. Olver.
A. Spicer.

Voting papers for overseas members will be posted early in February, and will include the names of all candidates for election nominated before January 28th, 1946.

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PERSONAL

Birth.—Prytherch.—On November 22nd, 1945, at The Laurels, Pensarn, Abergele, to Kate, wife of Huw E. Prytherch, M.R.C.V.S.—a son, John Edward.

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Marriages.—Bruce—Bennett.—On November 14th, 1945, at St. Bede's Church, South Shields, Captain W. Bruce, R.A.V.C., eldest son of Captain R. L. Bruce, O.B.E., and Mrs. Bruce, of South Shields, to Muriel Cecilia Bennett, daughter of Mr. and Mrs. J. V. Bennett, of 2, Wood Terrace, South Shields.

Barrett—Moran.—At Tamworth, Staffordshire, on November 27th, 1945, between Eric Philip Barrett, M.R.C.V.S., and Ivy Elizabeth Moran, of 8, Avonmore Avenue, Guildford, Surrey.

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R.C.V.S. OBITUARY

Chalmers, James, 28, Louis Botha Avenue, Houghton, Johannesburg, Transvaal, South Africa. Graduated London, July 13th, 1900. Died November, 1945; aged 70 years.

Dr. Jas. Chalmers, M.R.C.V.S.

We regret to learn, from Reuter's Correspondent, that Dr. J. Chalmers, a prominent veterinary surgeon and a member of the South African Institute for Medical Research, has died in Johannesburg.

Born at Perth, and educated at Edinburgh, he took his degree with honours at the London College, and went to South Africa with the British Forces during the South African War. He subsequently joined the Transvaal Agricultural Department and later the South African Department of Agriculture.

In 1920 he was sent by the Government to investigate the meat export trade in England and South America. On his return he was placed in charge of the Union's meat export at Durban.

Later he was veterinary officer in Johannesburg until his retirement in 1930.

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Sayer, Brinley, 17, Woodville Road, Newport, Mon. Graduated London, December 11th, 1919. Died November 18th, 1945.

Mr. B. Sayer, M.R.C.V.S.

Members of the veterinary community in Wales, and more especially those who met him at the meetings of the South Wales (formerly Mid-West and South Wales) Division, N.V.M.A., will mourn the death of Mr. Brinley Sayer, an able veterinarian and an unassuming man of sterling qualities.

The only son of Mrs. C. H. Sayer and the late Mr. Edwin Sayer, M.R.C.V.S., Mr. Sayer, who was a bachelor, was born in Newport. His father, well known in the town, was in practice as a veterinary surgeon in Chepstow Road, Newport. Upon the retirement of Mr. Sayer, sen., about 1919, the family went to live at Picket Mead, Newton, Mumbles, but returned to Newport about 1935.

The South Wales Argus, in a tribute says: "Mr. Sayer's death will be regretted by a large number of personal friends. A man of very kindly disposition, his thoughts always were for others, and he took every opportunity to render good turns. A keen student, he showed a great interest in art."

The Late Capt. J. B. Idle, M.R.C.V.S.

Capt. Joseph Birkenshaw Idle, I.V.S. (retd.), whose death we recorded with much regret in our last issue, went to Harrogate at an early age, when his father took a post in the town, and after his schooldays studied at the Royal (Dick) Veterinary College. He subsequently went to Rhodesia on Government research service.

During the Great War of 1914-18 he served in the 6th Dragoon Guards in France and Germany, and was afterwards in Ireland for a period. An appointment with the Indian Civil Veterinary Service in 1920 necessitated his retirement from the Army, and he went to Burma on an important appointment. He became Director of the Veterinary College, but was invalided home in 1932. In later years he devoted his time, in a veterinary capacity, to racehorses, and finally retired from work to reside in Harrogate. During his career he engaged in much big game hunting and had many trophies of his prowess.

McCrea, Arthur George, Municipal Veterinary Surgeon, Penang, Straits Settlements. Graduated Edinburgh, July 15th, 1925. Died in a Prisoner-of-War Camp, November 10th, 1943.

Mr. Arthur G. McCrea, M.R.C.V.S., D.V.S.M.

Our readers will learn with deep regret that his relatives, although in receipt of no official intimation, have heard recently from an authoritative source that Mr. Arthur George McCrea, Municipal Veetrinary Surgeon, George Town, Penang, and who was a prisoner of war, died in Siam in 1943.

A medical officer on the expedition to Siam writes that he saw Arthur McCrea fairly frequently. "Like most of us he was in poor condition after our long march and was unfit for heavy work. He was admitted to hospital at Kami Sonkurai on August 18th, 1943, and was there until his death on November 10th, 1943. He finally developed beri-beri due to the diet which we were receiving. There was unfortunately very little which could be done for him or the numerous other patients suffering from the same disease."

The death under such tragic circumstances of an able and popular member will be widely mourned, and the deepest sympathy will be felt for those bereaved in the sad termination of their time of prolonged anxiety.

Funeral of Major Peter McIntyre, O.B.E., M.R.C.V.S.

The funeral of Major Peter McIntyre, of Greenock, whose death we recorded with much regret on our last issue, took place at Woodside Crematorium, Paisley, on Wednesday, November 21st. The following members of the profession attended: Messrs. W. D. Macrae, M. H. W. Miller, C. Tracy and F. J. Kinghorn (representing the Ministry of Agriculture), Mr. R. E. McGrath and Mr. J. G. McGreevy, with Mr. Alex. Thomson (representing the West of Scotland Division, N.V.M.A.).

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Death of Dr. W. L. Williams

The death of Dr. Walter L. Williams, the authority on veterinary obstetrics, whose text-book thereupon is so widely known and valued, will be mourned throughout the whole veterinary community. Dr. Williams, who passed away at his home in Ithaca, New York, on October 23rd, was 89 years of age, and was a member of the original faculty of the College of Veterinary Medicine at Cornell University.

The Ithaca Journal records that Dr. Williams was born on February 26th, 1856, near the present village of Argenta, Ill. He entered the Illinois Industrial University (now the University of Illinois) in 1875, and spent two years there before transferring to Montreal Veterinary College, from which he graduated in 1879.

"Dr. Williams became a practising veterinarian in Illinois, and until 1891 was assistant state veterinarian. In 1890-91 a severe attack of influenza compelled him to give up his practice, and he accepted the chair of professor of veterinary science at Purdue University. After two years on the Purdue faculty, he went to Montana Agricultural College, Bozeman, in 1893, and spent three years there.

"Hearing about the coming opening of the State College of Veterinary Medicine at Cornell, Dr. Williams wrote to Professor James Law, first dean of the College. He came east in 1896 for an interview with President Schurman, and was selected as professor of veterinary surgery, obstetrics, zootechnics, and jurisprudence. He served in this capacity until 1915, when he was appointed professor of veterinary obstetrics and research professor of diseases of breeding cattle. He was made professor emeritus in 1921.

"Dr. Williams was an associate editor of the *American Veterinary Review* between 1890 and 1912; editor for the United States of the *Veterinary Journal* of London between 1906 and 1908; president of the Illinois State Veterinary Medical Association from 1889 to 1890, the American Veterinary Medical Association in 1893, the New York State Veterinary Medical Society in 1906-7; an honorary member of the Iowa Veterinary Medical Association; a foreign corresponding member of the Societé Centrale de Médicine Vétérinaire of France; an honorary member of the Central Veterinary Society of England, and the Veterinary Society of Sweden.

"Last January Dr. Williams addressed the Cornell Veterinary Conference on 'Recollections of, and Reflections Upon, 65 years in the Veterinary Profession'."

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ADDRESSES OF DISEASE-INFECTED PREMISES

The list given below indicates, first, the county in which are situated the premises on which disease has been confirmed, followed by the postal address and date of outbreak.

Swine Fever:

Berks.—The Boot Inn, East Hagbourne, Didcot, Berks. (Nov. 29th).

Bucks.—Pittam's Farm, Lillingstone Lovell, Buckingham (Nov. 27th).

Derbyshire.—Manor Farm, Stanton-by-Newhall, Burton-on-Trent, Staffs. (Nov. 29th).

Essex.—"Melindii," Lodge Lane, Havering, Romford, Essex (Nov. 30th).

Glam.—The Piggeries, Clyne Valley, Blackpill, Swansea, Glamorgan (Nov. 28th).

Hants.—Stapley Farm, Farringdon, Alton, Hants. (Dec. 1st).

Yorks. (E.R.).—Southgate, Hessle, Yorks (Nov. 28th).

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A THOROUGHBRED REGISTRY

Reuter's Kentucky Correspondent reports that Major L. A. Beard, director of the Greentree Stud, in a speech at a Thoroughbred Club of America dinner, made a plea for an International Thoroughbred Registry. He said: "There should be an International Registry of Thoroughbreds for all major countries where racing has been long established. This registry, I believe, should encompass each National Stud Book in its entirety." Major Beard also wanted a supplementary book of half-breds. He added: "Beyond this question of an International Stud Book lies the question of international contests."

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Central Veterinary Society's "Clinical Forum."—As intimated in our Notices column, the January meeting of the Society will be devoted to a "Clinical Forum" at which questions relating to clinical aspects of the subjects indicated therein will be dealt with by those named. The Secretary of the Society invites Fellows to submit questions well in advance of the meeting.

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Chair of Agriculture at the University College of Wales, Aberystwyth.—This post, which has recently been advertised at a salary of £1,250 p.a., is for a specialist in either crop husbandry or animal husbandry. Applications have to be received by December 31st, 1945. Details relating to the post and to the forms of application may be obtained from the Registrar, University College of Wales, Aberystwyth.

The Wellcome Veterinary Diary, 1946

As a result of relaxations in the regulations governing the distribution of printed matter, Burroughs Wellcome & Co. are now able to issue the Wellcome Veterinary Diary for 1946 free of charge, instead of making a nominal charge of 1d. as previously requested.

The Publishers propose to send all monies already received under this arrangement to the Victoria Veterinary Benevolent Fund, and hope that this arrangement will meet with the approval of all concerned.

Veterinary surgeons who wish to receive conies of the Diary are recommended to make application without delay to Burroughs Wellcome & Co., 12, Red Lion Square, London, W.C.1. The edition is necessarily limited, and the demand is likely to exceed the supply.